هُوَالْحَكِيم

15th Middle East
Cardiovascular Congress(MECC)

8th Congress of
Clinical Cases in Complex
Cardiovascular Theraputics (CCCCT)

3rd Student Conference

From Prevention to Intervention

2024
Shiraz   24-26 January

چهارم تا ششم بهمن ماه

15th Middle East Cardiovascular Congress(MECC)
8th Congress of Clinical Cases in Complex Cardiovascular Therapeutic (CCCCT)
3rd Student Conference

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This book is freely available for congress participants and related companies.

فهرست
Content

پیام رئیس کنگره

دکتر محمدجواد زیبایی نژاد

رئیس مرکز تحقیقات قلب و عروق دانشگاه علوم پزشکی شیراز

کنگره قلب و عروق خاورمیانه اینک به پانزدهمین و مداخلات پیچیده قلبی به هشتمین ایستگاه خود رسیده است و ما بر آن بر آن داشته است که عنوان **From Prevention to Intervention** را برگزینیم. اینک جامعه پزشکی به این نتیجه رسیده است که افزایش مداخلات قلبی (Intervention)و انجام آنژیوگرافی و آنژیوپلاستی در نتیجه عدم توجه به پیشگیری از زمان نوجوانی و حتی طفولیت است و صدالبته کنترل فاکتورهای خطرزای ایجاد کننده سکته‌های قلبی و مغزی (Risk Factors) که پاره‌ای از آنان فامیلی و حتی ژنتیکی می‌باشند، می‌توانند در تعداد اعمال قلبی چه جراحی قلب و چه مداخلات تهاجمی موثر می‌باشند.

حرکت زیبای وزارت بهداشت و درمان در شناسایی بیماران فشارخونی و دیابتی و همچنین گرایشات اکثر کوهورت‌های قلبی عروقی و مراکز تحقیقاتی در امر پیشگیری از سکته‌های قلبی و مغزی در چند سال اخیر که نتیجه آن افزایش طول عمر در مردان و زنان کشورمان بوده است، قابل تقدیر است اما کافی نیست.

امروزه تعمیق آموزش و فرهنگ پیشگیری در گروه‌های مردم باید در دستور کار دولت و NGOها و مراکز تحقیقاتی و آموزشی قرار گیرند و نه تنها وزارت بهداشت و درمان، بلکه وزارت آموزش و پرورش، وزارت صمت (که تولید صنایع غذایی را در دستور کار خود دارد)، صدا و سیما، وزارت ورزش و جوانان، وزارت فرهنگ و ارشاد با هماهنگی کامل در این امر خطیر ورود نمایند.

مرکز تحقیقات قلب و عروق دانشگاه علوم پزشکی شیراز افتخار دارد به همراه گروه قلب تاکنون اکثر تحقیقات و پایان نامه‌ها و همایش‌ها را به سمت و سوی پیشگیری سوق داده است و از این لحاظ پیشتاز بوده است و هم اینک با اجرای طرح کوهورت قلب و عروق در شهر شیراز زمینه ساز اقدام عملی جهت اجرای طرح "شیراز شهر سالم" گردیده است. طرحی که در عرض دو و الی سه سال می‌تواند شانس سکته‌های قلبی-مغزی را در این شهر کاهش دهد و با تعمیق آموزش در میان مردم به این کاهش پایداری ببخشد.

ضمن خوشامدگویی به کلیه سخنرانان و میهمانان این کنگره از کلیه عوامل اجرایی، مسئولین محترم دانشگاه علوم پزشکی، شرکت‌های دارویی و پزشکی که با حمایت خود بر غنای این کنگره افزودند اقامت خوشی را در شیراز برای همگی عزیزان آرزومندم.

مرا دلیست گرفتار خطه شیراز   ز من بریده و خو کرده با تنعم و ناز

ارکان کنگره

15th Middle East Cardiovascular Congress(MECC)
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دکتر محمدجواد زیبایی نژاد

رئیس کنگره
و رئیس مرکز تحقیقات قلب و عروق دانشگاه علوم پزشکی شیراز

دکتر نیما مهدی زادگان

دکتر حامد بذرافشان

دبیر اجرایی

دبیر اجرایی

دبیران علمی کنگره

دبیر علمی بخش MECC : دکتر فیروزه ابطحی

دبیر علمی بخش CCCCT : دکتر علیرضا عبدی

دبیر علمی بخش پرستاری: دکتر معصومه رامبد

دبیر علمی بخش پوستر: دکتر ایمان رازقیان جهرمی

دبیر علمی بخش دانشجویی: دکتر حامد بذرافشان

اعضای کمیته علمی

دکتر علیرضا معرف	دکتر محمدجواد زیبایی نژاد
دکترمحمدحسین نیکو	دکتر علیرضا عبدی
دکتر مهدی زادگان	دکتر داوود خلیلی
دکتر حامد بذرافشان	دکتر آرمین عطار
دکتر فیروزه ابطحی	دکترمحمود ضمیریان

اعضای کمیته اجرایی

مسئول سایت: سیده مرضیه موذن شاهچراغی	مسئول دبیرخانه: زهرا دانشور
دکتر آرمین فریدونی	حوری سادات موسوی نژاد
دکتر نادر پارسا	سکینه رضایی

رقیه بیضاوی

اعضای کمیته دانشجویی

فاطمه رحیمی	امیرحسین ملاحی	دکتر محمدعلی نیری
آرام ابانگا	ارشین قائدی	آیدا بذرگر
ساقی اسلام زاده	شهریار باقری	حلیمه گوهریان
عارف زارع زاده	امیررضا جوکار	مهرگان شاهرخی
	افشین محمدی	ثنا فارسی
	مریم شریفی	مریم فخاری نژاد

Daily Scientific Program

15th Middle East
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First Day

Wednesday
24 Jan 2024 - (4 Bahman)

Preventive cardiology Hypertension case presentation according to latest American + European Guideline (AbouReihan Hall)			
Moderator: Dr. Mirbod Panelists: Dr. Babaei beigi, Dr. Zibaeenezhad, Dr. Bazrafshan, Dr. Attar, Dr. Izadpanah, Dr. Babajafari, Dr. Kazemi, Dr. Roosta			
7:45-9:45	Diagnosis and treatment of HTN in adults	Dr. Samin Behdad	Isfahan Hypertension Research Center, Cardiovascular research institute
	Diagnosis and treatment of HTN in children	Dr. Alireza Ahmadi	
	Resistance HTN	Dr. Seyede Mahnaz Mirbod	
	The role of exercise in preventing cardiovascular diseases	Dr. Seyedvahid Mojab	Shiraz Cardiovascular Research Center

OPENING CEREMONY
9:45 – 10:15

Dr. Imanie, Dr. SeiedVahid Hosseini, Dr.Noohi, Dr. Lankarani, Dr. Zibaeenezhad, Dr. Tabande, Dr. Aghajani

Research Centers Reports 1
(AbouReihan Hall)

Moderator: Afshin Ostovar
Panelists: Dr. Noohi, Dr. Bahramali, Dr. Khalili, Dr. Zibaeenezhad, Dr. Tabande, Dr. Panahi

10:15-11:45	Population based interventions for reduction of burden of cardiovascular diseases : Global real world evidence	Dr. Kamran Lankarani	Shiraz Health Policy Research Center
	The STEP-wise approach to non-communicable disease risk factor surveillance (STEPS) 2021	Dr. Shirin Jalalinia	Iran Ministry of Health and Medical Education
	Clinical prediction models for cardiovascular diseases in IRAN	Dr. Noushin Fahimfar	Osteoporosis Research Center, Endocrinology and Metabolism Research Institute
	Main findings of DiaCare survey	Dr. Ramin Heshmat	Chronic Diseases Research Center, Endocrinology and Metabolism Research Institute
	Compare of ASCVD Score in a metropolitan and small city	Dr. Ehsan Bahramali	Fasa Noncommunicable disease research center

Pray
11:45-12:15

Heart Failure and Transplant
(AbouReihan Hall)

Moderator: Dr. Zamirian
Panelists: Dr. Sanjarian, Dr. Shafa, Dr. Jannati, Dr. Nemati, Dr. Amirghofran, Dr. Abtahi

12:15-14:00	Graft dysfunction	Dr. Mahmoud Zamirian
	New Treatment in Heart Failure	Dr. Marjan Hajahmadi
	Cardiac Amyloidosis	Dr. Seyede Somayeh Jalali
	Use of ECMO and LVAD in heart failure patients before and after heart transplantation	Dr. Mehrzad Rahmanian

First Day
Wednesday

LeftMain PCI (RAZI Hall)			
Moderator: Dr. Zibaeenezhad Dr. AR. Abdi, Dr. Bayani, Dr. A. Mohammadi, Dr. Adl, Dr. Bahramali, Dr. fattahi, Dr. Izadpanah, Dr. Mehrpouya, Dr. Aghajani, Dr. S.Abdi(online)			
12:15-14:00	Case 1 (Online Peresentation)	Dr. Alireza Nematollahi	Isfahan
	Complex LM-Bifurcation case	Dr. Bahram Shahri	Mashhad
	LM Rotablator Case	Dr. Mohammadjavad Alemzadeh	Tehran
	Case 4	Dr. Morteza Safi	Tehran
	Case 5	Dr. Pouyan Dehghani	Shiraz
	Case 6	Dr. Mohammadali Ostovan	shiraz

LUNCH 14:00- 14:45

Nursing1 (AbuReihan Hall)			
Moderator: Dr. Rambod Panelists: Dr.Z Mohebbi, Dr. Khademian, Dr. Yazdanpanahi, Dr. Pasyar, Dr. Rakhshan, Miss Negahban, Miss Rasekh			
14:45-16:15	The prevention and management' guideline of cardiovascular diseases: A lifestyle modification strategy	Dr. Masoume Rambod	Shiraz
	A Review on 2023 European Society of Hypertension Guideline	Dr. Zinat Mohebbi	Shiraz
	Is fertility preservation an appropriate option for women with cardiovascular disease?	Dr. Zahra Yazdanpanahi	Shiraz
	Tele-rehabilitation Programs in patients with Heart Failure	Dr. Nilofar Pasyar	Shiraz
	Tele-Cardiac Rehabilitation of Patients with AICD and Their Spouses	Dr. Mahnaz Rakhshan	Shiraz

Complication and Interesting Case
(RAZI Hall)

Moderator: Dr. AR. Abdi
Panelists: Dr. Sajjadi, Dr. Emami, Dr. Toloui, Dr. Zibaeenezhad, Dr. Mehrpuya, Dr. S. Abdi (online)

14:45-16:15	Multi Organ Failure after PCI	Dr. Khatere Dehghani	Jahrom
	Iatrogenic LM Dissection	Dr. Mohammadhassan Adel	Ahvaz
	LAD- PCI / Inferior STEMI	Dr. Mohammadjavad alemzade	Tehran
	Incredible guiding catheter tip detachment during complex coronary intervention	Dr. Mohammadreza Pourbehi	Boushehr
	Case 4	Dr. Sajjadi	Mashhad
	Case 5	Dr. Shojaei	Jahrom
	Case 6	Dr. Emami	Bandarabbas

BREAK
16:15-16:30

Student Research
(AbuReihan Hall)

Moderator: Dr. Bazrafshan
Panelists: Dr. Bazregar, Dr. Goharian, Dr. Naiery, Dr. Ghaedi, Dr. Sahebi

16:30-18:00	Trends in Cardio-oncology	Dr. Aida Bazrgar
	Cardiac complications of traumatic patients	Dr. Arshin Ghaedi
	Inflammatory biomarkers in premature atherosclerosis	Dr. Amirhossein Mallahi
	Bariatric surgery and cardiology	Dr. Hamid Zaferani
	Cell therapy in cardiology	Dr. Hossein fatemian
	AI and cardiology	Dr. Shayan sabbaghzadeh
	Covid 19 and cardiology	Dr. Halime Gohareyan
	OMI and STEMI Equivalents	Dr. Mohammadhossein ghasemi
	Post MI rehabilitation	Dr. Sina sohrabizadeh

First Day
Wednesday

CTO PCI (Razi Hall)			
Moderator: Dr. B. Bayani Panelists: Dr. Ghofraniha, Dr. A. Mohammadi, Dr. Haghshenas, Dr. Mansouri, Dr. Alavi ,Dr. Alkamel			
16:30-18:00	Interesting Case Presentation	Dr. Mehdi Toloui	Tabriz
	Case 2	Dr. Baktash. Bayani	Mashhad
	Case 3	Dr. MohammadJavad Alemzadeh	Tehran
	Case 4	Dr. Madadi	Tehran
	Case 5	Dr. Armin Attar	Shiraz

BREAK 18:00-18:15

First Day Wednesday

Workshop of Diabetes
Sponsored by abidi
(AbuReihan Hall)

Moderator: Dr. Bazrafshan

18:00-19:00	Dr. Bazrafshan

Workshop of Antiplatelet
Sponsored by abidi
(AbuReihan Hall)

Moderator: Dr. Bazrafshan
Panelists: Dr. Arjangzade, Dr. Izadpanah, Dr. Barzegar

19:00-20:00	Dr. Bazrafshan

Multi-vessel PCI
(RAZI Hall)

Moderator: Dr. M. Toloui
Panelists: Dr. Aslanabadi, Dr. Shahri, Dr. Zibaeenezhad, Dr. Alemzadeh,
Dr. Mirboluk, Dr. Aghajani

	Case 1	Dr. Mehdi Toloui	Tabriz
	Case 2	Dr. Baktash Bayani	Mashhad
18:15-20:00	Case3 (online presentation)	Dr. Arash Hashemi	Tehran
	Case4	Dr. Ali Golmohammadi	Tabriz
	Case 5	Dr. Alireza Nematollahi	Isfahan

First Day
Wednesday

Second Day

Thursday
25 Jan 2024 - (5 Bahman)

Preventive cardiology Hyperlipidemia case presentation according to latest American + European Guideline
Sponsored by عبيدى
(AbouReihan Hall)

Moderator: Dr. Attar
Panelists: Dr. Ostovar, Dr. Etemad, Dr. Aghasadeghi, Dr. Babajafari, Dr. Bazrafshan, Dr. Sattarzadeh, Dr. Shams , Dr. Kazemi

8:00-10:00	LDL Treatment	Dr. Hamed Bazrafshan	Shiraz Cardiovascular Research Center
	Familial Hypercholesterolemia	Dr. Kamran Aghasadeghi	
	High TG	Dr. Mahmoud Zamirian	
	Low HDL	Dr. Mohammadali Babaei Beigi	

Joint meeting OB/Cardiologists
Cardiac Problem during pregnancy
(Razi Hall)

Moderator: Dr. Vafaei

8:00-10:00	Prinatologist	Dr. Azam Faraji Dr. Homeira Vafaei Dr. Shaghaiegh Moradi Dr. Shohre Roozmeh Dr. Fateme Shariati	Shiraz
	Cardiologists	Dr. Mohammadjavad Zibaeenezhad Dr. Firooze Abtahi Dr. Alireza Moaref	Shiraz

BREAK
BREAK **10:00-10:15**

Research Centers Reports 2 (AbouReihan Hall)		
Moderator: Davood Khalili Panelists: Dr. Farshidi, Dr. Noohi, Dr. Panahi, Dr. Mirboluk, Dr. Etemad, Dr. Khalili, Dr. Heshmat, Dr. Fahimfar		
	Polypil for prevention of CVD in IRAN, update 2023	Dr. Reza Malekzadeh	Digestive Diseases Research Institute
10:15-11:45	Trend and Trajectory of cardiometabolic risk factors: Tehran Lipid and Glucose Study (TLGS)	Dr. Farzad Hadaegh	Prevention of Metabolic Disorders Research Center Shahid Beheshti University of Medical Sciences
	Electrocardiographic values and abnormalities in the general adult population: Tehran Cohort Study	Dr. Mohammad Mohammadi	Tehran Cardiovascular research Center
	Preventive Strategy in reducing ASCVD score in high Population: Shiraz cohort heart Study	Dr. Mohammadjavad Zibaeenezhad	Shiraz Cardiovascular Research Center
	Support of cohort studies in research centers	Dr. Panahi	Ministry of Health

Second Day
Thursday

Second Day Thursday

Joint meeting Cardiac surgeon /Cardiologists Tricuspid Valve disease (TVD). Congenital and Acquired (Razi Hall)			
Moderator: Dr. Amirghofran			
10:15-11:45	Congenital TVD, Introduction & Classification	Dr. Arabi	Shiraz
	Congenital TVD: Echo and Imaging	Dr. Mohammadi	Shiraz
	Congenital TVD: Surgical management	Dr. Rafati	Shiraz
	Acquired TVD: Introduction and Classification	Dr. Arjangzadeh	Shiraz
	Acquired TVD: Echocardiographic evaluation	Dr. Moaref	Shiraz
	Acquired TVD: Medical and Intervention treatment	Dr. Izadpanah	Shiraz
	Acquired TVD: Surgical Management , New modalities	Dr. Ahmadali Amirghofran	Shiraz

Pray 11:45-12:15

Valvular Heart Disease (AbouReihan Hall)			
Moderator: Dr. Moaref Panelists: Dr. Moshkani farahani, Dr. Savandroumi, Dr. Izadpanah, Dr. Shafiee, Dr. Rafati , Dr. Sattarzade			
12:15-14:00	Assessment and planning of functional MR	Dr. AR. Moaref	shiraz
	Assessment and planning of primary MR	Dr. S. Jamshidi	shiraz
	Assessment and planning of TR	Dr. F. Abtahi	Shiraz
	Approach to low-gradient AS	Dr. S. Barzegar	Shiraz

Peripheral Case
(Razi Hall)

Moderator: Dr. Mohebbi
Panelists: Dr. O.Shafe, Dr. J.Mousavi, Dr. B. Mohebbi, Dr. Ghodousi Jowhari, Dr. Adl

	Case1	Dr. Omid Shafe	Tehran
	Case 2	Dr. Jamal Mousavi	Tehran
12:15-14:00	Case 3	Dr. Bahram Mohebbi	Tehran
	Case 4	Dr. Ali sadrbafghi	Yazd
	Case 5	Dr. Adl	Shiraz

LUNCH
14:00- 14:45

Congenital Heart Disease
(AbouReihan Hall)

Moderator: Dr. Mehdizadegan
Panelists: Dr. Borzouie, Dr. Ajaami, Dr. Edraki

	Perinatal diagnosis of Pulmonary stenosis	Dr. H. Zamani	
	Neonatal evaluation of P.S	Dr. Kheirandish	
	Neonatal intervention on Pulmonary valve	Dr. Golbabaee	
	Intervention on Pulmonary artery branches	Dr. Mortezaeian	
14:45-16:15	Fetal intervention	Dr. Amoozgar	
	Intervention in single ventricle with P.S	Dr. Ghaderian	
	Indication of surgery on P.V and branches	Dr. Edraki	
	Case of PS intervention	Dr. F. Jaffari	

Second Day
Thursday

Second Day Thursday

Non STEMI PCI (RAZI Hall)			
Moderator: Dr. M. Aghajani Panelists: Dr. Shojaei, Dr. Hejazi, Dr. Bayani, Dr. M. Hosseini, Dr. Bahramali, Dr. Nematollahi, Dr. Alemzade			
14:45-16:15	Case 1	Dr. Hassan Aghajani	Tehran
	Case 2	Dr. Mani Ghorbanzade	Tehran
	Case 3	Dr. Mehdi Mehrani	Tehran
	Case 4	Dr. Kave Hosseini	Tehran
	Case 5	Dr. Maryam Mehrpouya	Tehran

BREAK **16:15-16:30**

Electrophysiology (AbouReihan Hall)			
Moderator: Dr. Nikoo Dr. Heidari, Dr. Aslani, Dr. M. Nemati, Dr.Bazrafshan, Dr. Arjangzadeh, Dr. Eslami, Dr. Isapourmoghaddam			
16:30-18:00	A case of ischemic VT with electrical storm	Dr. Shahab Shahrzad	Shiraz
	A young man with HCM and VF	Dr. MohammadHosein Nikoo	Shiraz
	Conduction system pacing using Stylet driven leads	Dr. Alireza Heidari bakavoli	Mashhad
	Micra implant through bio prosthetic tricuspid valve (Online Presentation)	Dr. Majid Haghjou	Tehran
	A patient with bulging and pain after ICD implantation	Dr. Amirhossein Azhari	Esfahan
	RF ablation of ventricular tachycardia in a case of Cardiac Amyloidosis	Dr. Zahra Emkanjoo	Tehran

STEMI PCI (Razi Hall)			
Moderator: Dr. Mehrpouia Panelists: Dr. Farshidi, Dr. Tolouie, Dr. Zibaeenezhad, Dr. Mohebbi, Dr. Abdi, Dr. Nematollahi, Dr. Alemzade, Dr. Safi			
16:30-18:00	Case 1	Dr. Hamed Vahidi	Tehran
	Case 2	Dr. Moradi Farsani	Tehran
	Case 3	Dr. Maryam Mehr-pooya	Tehran
	Case 4	Dr. Hassan Aghajani	Tehran
	Wrap up	Dr. Hassan Aghajani	Tehran

Workshop of Anticoagulation **Sponsored by** abidi (AbuReihan Hall)		
Moderator: Nikoo Panelists: Dr Shahrzad, Dr. Aslani, Dr. Bazrafshan, Dr. Arjangzadeh		
18:00-19:00	Dr. Nikoo	Shiraz

Workshop of EKG (AbuReihan Hall)		
Moderator: Dr. Bazrafshan		
19:00-20:00	EKG Case Presentation	Dr. Arjangzadeh, Dr. Bazrafshan

Second Day
Thursday

Third Day

Friday
26 Jan 2024 - (6 Bahman)

Preventive cardiology Diabetic case presentation according to latest American + European Guideline Sponsored by عبيدي (AbouReihan Hall)			
Moderator: Dr. Dabaghmanesh Panelists: Dr. Soveid, Dr. Attar, Dr. Shams, Dr. Karimi, Dr. Sadeghian, Dr. Babajafari, Dr. Aghasadeghi			
8:00-10:00	Pharmacological Treatment to Prevent MACE in DM	Dr. Alireza Arjangzadeh	Shiraz
	Tight BS Control to do or not to do	Dr. Marjan Jeddi	Shiraz
	How to manage target organ damage in diabetics	Dr. Alireza Arjangzadeh	Shiraz
	Diet in Preventive of DM + Cardiovascular disease	Dr. Siavash Babajafari	Shiraz

TAVI PCI (RAZI Hall)			
Moderator: Dr. A. Firoozi Panelists: Dr. Farshidi, Dr. Hejazi, Dr. Ostovan, Dr. Aghajani, Dr. Hassanzadeh, Dr. Valizadeh			
8:00-10:00	TAVI	Dr. Alemzadeh	Tehran
	Mitral Valve in Valve	Dr. Zahra Hosseini	Tehran
	Case 3	Dr. Mohammadreza bai	Tehran

Research Centers Reports 3 (AbouReihan Hall)			
Moderator: Koorosh Etemad Panelists: Dr. Farshidi, Dr. Panahi, Dr. Zibaeenezhad, Dr. Mirbolouk			
10:15-11:45	The Iranian blood pressure measurement campaign, 2019	Dr. Afshin Ostovar	Endocrinology and Metabolism Research Institute
	The Iranian blood pressure and diabetes campaign, 2023	Dr. Koorosh Etemad	Ministry of Health Director of Non-Communicable Diseases Office
	Prevention of Metabolic Disorders Research Center Shahid Beheshti University of Medical Sciences	Dr. Davood Khalili	Endocrinology and Metabolism Research Institute
	How to use cohort studies in preventive strategic	Dr. Farshidi	Ministry of Health

Third Day Friday

Joint meeting Cardiac surgeon /Cardiologists PCI Versus CABG (Razi Hall)			
Moderator: Dr. Shafeie			
10:15-11:45	Cardiac surgeon	Dr. Shafeie Dr. Nemati Dr. Zarrabi Dr. Ghazinour Dr. Jamshidi	
	Cardiologists	Dr. Izadpanah Dr. Alavi Dr. Valizadeh Dr. Haghshenas Dr. Tabande	

BREAK & Pray 11:45-12:15

Third Day Friday

cardiomyopathy 2023 guideline (AbouReihan Hall)			
Moderator: Dr. F. Abtahi Panelist: Dr. Moaref, Dr.Razmi, Dr. Tavasoli, Dr. Yazdani, Dr. Nikoo , Dr. Sattarzadeh			
12:15-14:00	Hypertrophic cardiomyopathy	Dr. F. Abtahi	Shiraz
	Dilated and non-dilated cardiomyopathy	Dr. S. Jalali	Shiraz
	RV cardiomyopathy	Dr. Zadebagheri	Shiraz
	Chemotherapy induced cardiomyopathy	Dr. M. Saiad	Shiraz

EVAR/TEVAR Case (Razi Hall)			
Moderator: Dr. Mohebbi Panelists: Dr. Shafe, Dr. J.Mousavi, Dr. Mohebbi, Dr. Hosseinzadeh, Dr. Radpei			
12:15-14:00	Case 1	Dr. Ahmad Hosseinzade	Shiraz
	Case 2	Dr. Jamal Mousavi	Tehran
	Case 3	Dr. Mohammadreza Radpei	Shiraz
	Case 4	Dr. Bahram Mohebbi	Tehran

LUNCH 14:00-14:45

Nursing2
(AbouReihan Hall)

Moderator: Miss Besharati
Panelists: Azizi, Dr. Vizeshfar, Dr. Bijani, Dr. Rivaz, Dr. Jaberi, Falah

14:45-16:15	Virtual reality, A new method for patient education in cardiology	Farnoush Azizi	Shiraz
	The use of artificial intelligence in nursing care of cardiac patients	Dr. Fatemeh Vizeshfar	Shiraz
	Exploring the challenges to using telecardiology as perceived by pre-hospital emergency care personnel: a qualitative study	Dr. Mostafa Bijani	Fasa
	Calcium supplementation and risk of coronary heart disease	Dr. Mozgan Rivaz	Shiraz
	The effect of educational-persuasive program on self-efficacy and success in smoking cessation in patients after coronary angioplasty: a quasi-experimental study	Dr. Zahra Khademian	Shiraz

Third Day
Friday

Bifurcation PCI
(RAZI Hall)

Moderator: Dr. A. Mohammadi
Panelists: Dr. Safari, Dr. Zeinalzade, Dr. Rowhani , Dr.Abdi, Dr. Bayani,
Dr. B. Malekzadeh, Dr. Hassanzadeh

14:45-16:15	Case 1	Dr. Morteza Safi	Tehran
	Case 2	Dr. Afshin Ghofraniha	Mashhad
	Case 3	Dr. Sasan Afifi	Shiraz
	Case 4	Dr. Afsane Mohammadi	Mashhad

BREAK 16:15-16:30

Workshop of Echocardiography (AbuReihan Hall)
Moderator: Dr. Moaref

16:30-18:00	Dr. Abtahi , Dr. Moaref, Dr. Zamirian, Dr. Aghasadeghi, Dr. Jamshidi, Dr. Barzegar

Third Day
Friday

Oral presentation

15th **Middle East**
Cardiovascular Congress(MECC)
8th **Congress of**
Clinical Cases in Complex
Cardiovascular Theraputics (CCCCT)
3rd **Student Conference**

Impact of Fixed Dose Combination Pharmacotherapy in Primary Cardiovascular Disease Prevention: An Individual Participant Data Meta-analysis of Three Large Randomized Controlled Trials

Reza Malekzadeh* on Behalf of the Polypill Trialists' Collaboration
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Abstract:

Background: Randomized controlled trials (RCTs) testing a fixed dose combination (FDC) or 'polypill' strategy have recently been shown to reduce cardiovascular disease (CVD) in primary prevention populations. It is postulated that larger benefits may occur for myocardial infarction and stroke given that blood pressure and cholesterol lowering are strongly related to these outcomes, but individual trials have not produced conclusive results. . Therefore, further studies are needed to better quantify effects on specific CVD outcomes.

Purpose: To quantify the effects of a FDC strategy on CVD, individual CV outcomes (e.g. myocardial infarction, stroke, revascularization, CV death), total deaths, and to assess safety and tolerability.

Methods: An individual participant data meta-analysis was conducted across three large long term RCTs in 18,162 participants without a prior history of vascular disease. Trials tested a FDC strategy compared to a control strategy (either placebo or minimal care). The primary outcome was a composite of CV death, myocardial infarction, stroke, or arterial revascularization. Additional pre-specified outcomes included each component of the primary outcome, and all-cause mortality.

Results: Mean age of the study population was 63.0 (7.1) years, and 9038 (49.8) were female. 799 primary outcome CVD events and 997 deaths occurred over a median follow up of 5 years. Results on the effects on the primary outcome and on each of the components and secondary outcomes will be presented along with information on safety and tolerability.

Conclusions: This meta-analysis will provide the most comprehensive assessment of the role of FDC in prevention of CVD in those without prior CVD.

The effect of educational-persuasive program on self-efficacy and success in smoking cessation in patients after coronary angioplasty: a quasi-experimental study

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2. MSc in Nursing, Student Research Committee, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
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Abstract

Introduction: Smoking is an important risk factor of coronary artery stenosis after angioplasty. Therefore, this study aimed to determine the effect of an educational-persuasive program on self-efficacy and success in smoking cessation in patients after coronary angioplasty.

Methodology: This quasi-experimental study was conducted on 94 patients with a mean age of 58.9±9.23. Patients were divided randomly into two intervention and control groups. The educational-persuasive program of quitting smoking was based on Allen Carr's method and included one hour face to face training and sending 32 text messages to the intervention group during a period of two months. Both groups filled out three questionnaires regarding smoking status, success and self-efficacy in quitting cigarette smoking before and after the intervention.

Results: The mean age for starting cigarette smoking was 19.91±4.01, and they smoked an average of 18.14±10.22 cigarettes a day. The results revealed that after the intervention, the mean score of self-efficacy in the intervention group (11.01±4 4.75) was significantly higher than the control group (6.51±3.11) and also higher than before the intervention (5.51 ± 2.44) (P<0.001). Furthermore, success in quitting smoking in the intervention group (n=29, 61.7 %) was significantly greater compared to that of the control group (n=2, 4.3%) (p<0.001).

Conclusion: The results showed that the educational-persuasive program for quitting cigarette smoking can increase self-efficacy in quitting smoking in patients after angioplasty effectively and increase their success in this process.

Keywords: Cardiovascular Diseases, Coronary Angioplasty, Self-Efficacy, Smoking Cessation

Exploring the challenges to using telecardiology as perceived by pre-hospital emergency care personnel: a qualitative study

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Abstract

Background: Today, using the medical technology of telecardiology, as part of advanced medical services, plays an essential role in providing care to cardiac patients in life-threatening conditions who need emergency care. However, pre-hospital emergency care personnel are faced with certain challenges in using telecardiology, with adverse effects on their performance. Therefore, the present study aimed to investigate the challenges to using telecardiology as viewed by pre-hospital emergency care personnel in Southern Iran.

Methods: This is a qualitative-descriptive study. Selected using purposeful sampling, 19 pre-hospital emergency care personnel were interviewed on a semi-structured, personal, in-depth basis. The qualitative data obtained were analyzed using the Graneheim and Lundman's conventional content analysis approach (2004).

Results: Based on the qualitative data analysis, 3 themes and 8 subthemes were obtained. The three main themes included professional barriers (lack of clinical knowledge of telecardiology, lack of clinical skill in telecardiology, violation of patients' privacy, lack of clinical guidelines on telecardiology), medical equipment and telecommunication barriers (poor reception and ineffective means of communication, low charge on the battery of tele-electrocardiogram machines), and organizational management barriers (serious lack of cardiologists available for medical counseling and lack of continual personal development of the tele-cardiology personnel).

Conclusion: The major challenges to using telecardiology in pre-hospital emergency care services are professional barriers, medical equipment and telecommunication barriers, and organizational management barriers. Senior organizational managers in pre-hospital emergency care services are recommended to

use the results of this study to identify the influential factors in using telecardiology and take the necessary measures to eliminate the existing barriers toward making optimal use of telemedicine, thereby improving the quality of care provided for cardiac patients.

Key words: Telecommunications, Telecardiology, Emergency medical services. Qualitative research

Leadless pacemaker implantation in the presence of the bioprosthetic tricuspid valve

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Cardiac Electrophysiology Research Center, Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Tehran, Iran

Abstract

A 21-year-old male, known case of the repaired congenital heart disease, developed complete atrioventricular block (AVB) one week after simultaneous bioprosthetic pulmonary and tricuspid valve replacement and atrial septal defect repair. Considering the persistence of the AVB, it was decided to implant a permanent pacemaker. After considering all available options and the issues related to the patient, it was decided to implant a leadless pacemaker (LLP). A Micra pacemaker was implanted successfully, and the patient was discharged in good condition and without any complications. Follow-up evaluation showed appropriate LLP and bioprosthetic valve functioning. Limited prior experiences and the present report showed that leadless pacemaker appears to be an ideal option in the patients with bioprosthetic tricuspid valve complicated by conduction disorders.

Keywords: bioprosthetic tricuspid valve; leadless pacemaker; Micra

A Review on 2023 European Society of Hypertension Guideline

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2. PhD Candidate in Nursing, Student Research Committee, Nursing and Midwifery College, Shiraz University of Medical Sciences, Shiraz, Iran.

Introduction: High blood pressure (BP) is associated with the strongest evidence for developing cardiovascular disease (CVD). Managing high blood pressure is a critical component in cardiac care. This study aimed to review the 2023 European Society of Hypertension (ESH) guideline.

Main body: The ESH guideline of Hypertension focuses on prevention, diagnosis, and treatment. In this regard, for BP assessment, the validated electronic, upper-arm cuff devices are recommended and Hybrid manual auscultatory devices recommended only if automated devices are not available.

Diagnosis of hypertension is based on office SBP ≥140 mmHg or DBP ≥90 mmHg measured during two or more separate visits, unless the patient has a BP ≥180/110 mmHg, or prior cardiovascular disease (CVD), or organ damage, or 'hypertension related symptoms' in which case the diagnosis may be based on readings at a single visit. Patients with hypertension are classified into Grade 1 (140–159/90–99 mmHg), Grade 2 (160–179/100–109 mmHg) and Grade 3 (≥180/≥110 mmHg) according to office BP and to Stage 1 (0, 1–2 or ≥3 risk factors), Stage 2 (organ damage, chronic kidney disease (CKD) or diabetes) and Stage 3 (established CVD or CKD stage ≥4) according to risk factors, organ damage and established CVD. Each patient is classified as being at very low, low, moderately-high or high risk for CVD according to grade and stage of HTN. A greater emphasis on out-of- office BP measurements, life style modification (weight loss in overweight or obese people, reduced dietary salt consumption to< 5 g/day, increased potassium intake , physical activity, smoking cessation, and moderation of alcohol intake), more explicit advice for use of beta blockers as initial antihypertensive drug therapy is seen in the new version of ESH guideline.

Conclusion: Successful implementation of HTN guidelines results in a substantially lower average of BP in general population with a significant reduction in morbidity and mortality.

Keyword: Hypertension, guideline, cardiovascular disease

Telerehabilitation Programs in patients with Heart Failure

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Abstract

Introduction: A key component of treating Heart Failure (HF) is Cardiac Rehabilitation (CR). Cardiac rehabilitation involves multiple elements such as Controlling and monitoring of cardiovascular risk factors, patient assessment, physical activity recommendations, and prescription for exercise training, psychological and professional assistance, as well as nutritional and dietary guidance. Telerehabilitation (TR) may be a viable and safe alternative or supplement to standard rehabilitation (CBCR).

Material and Methods: For this study, electronic databases including SID, IranMedex, Google Scholar, PubMed, and Scopus were searched for articles published between 2020 and 2023 using the phrases "Heart Failure," "Telerehabilitation," and "Program."

Results: The accessibility to supervised regular exercise for HF patients at home or in the community may be enhanced with the use of Telerehabilitation. Through TR programs, the medical team is kept informed about the patient's physical activity, blood pressure, heart rate variability, ECG recordings, and oxygen saturation. TR facilitates better adherence to lifestyle and exercise adjustments. Initial evidence indicates that TR may result in monetary savings and lower use of health care services.

Discussion and Conclusion: Before being extensively utilized, TR still must go beyond a few obstacles linked to patients, including as low health and technology literacy, physician lack of awareness, moral and legal dilemmas, interoperability concerns, technical difficulties, and payment constraints.

Keywords: Heart Failure, Telerehabilitation, Program

Tele-Cardiac Rehabilitation of Patients with AICD and Their Spouses

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Abstract

Introduction: Despite the placement of AICD, patients and their spouses suffer from various problems such as impairment of sexual satisfaction. In this regard, it seems that cardiac rehabilitation is a solution that can be provided and useful through Tele-nursing. The aim of this study was to determine the effect of cardiac rehabilitation through Tele-nursing on sexual satisfaction in patients with AICD and their spouses.

Material and Methods: Two-group clinical trial was performed on 136 person (68 patients with AICD and their spouses). The intervention group, during 10 weeks, received cardiac rehabilitation via Tele-nursing including training, counseling and telephone follow-ups and texting. Then, patients' sexual satisfaction were assessed using the Larson Questionnaire 3 months after the start of the study.

Results: According to the type of heart rhythm management device in the intervention group of patients with AICD, the mean score of sexual satisfaction after cardiac rehabilitation increased compared to before cardiac rehabilitation (P <0.05). The results also showed an increase in the mean score of sexual satisfaction after cardiac rehabilitation in the intervention group compared to the control group in patients with AICD (P = 0.004).

Discussion and Conclusion: Based on the results, cardiac rehabilitation via Tele-nursing increased sexual satisfaction in patients in the intervention group. The study of the effect of cardiac rehabilitation by device type gave more detailed information to the research team, as it was observed, cardiac rehabilitation increased sexual satisfaction of patients with AICD. Therefore, emphasis on cardiac rehabilitation programs, even in the form of Tele-nursing, is recommended as part of the treatment and care of patients with rhythm management devices.

Keywords: Cardiac Rehabilitation, Sexual quality of life, Pacemaker, Tele-nursing

The prevention and management guideline of cardiovascular diseases: A lifestyle modification strategy

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Introduction: Prevention and rehabilitation of cardiovascular diseases (CVD) play an important role in reducing mortality and morbidity. This article was written with the aim of determining strategies for the prevention and management of CVD with a focus on lifestyle modification.

Material and Methods: This study was conducted with a systematic review to recognize the prevention and management of CVD and prevention and control of lifestyle according to the report the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines, 2023.

Results: Dietary behavior changes are crucial to decrease the risk of acute CVD events. Using a diet with vegetables, fruits, legumes, nuts, whole grains, and lean protein is suggested. Mental health is one of the other things that prevent CVD. It is useful to screen people in terms of mental health, refer them to psychologists and psychiatrists, and perform psychological interventions. Another strategy to reduce the risk of CVD is to reduce and stop smoking and tobacco use. Moreover, exposure to secondhand smoke can be dangerous. Therefore, it is useful to advise to stop smoking and eliminate environmental pollution. Patients with CVD should be routinely assess and counseled about substance used to decrease CVD. Performing activities in the prevention and control of CVD is particularly important. Management of blood lipids and blood pressure is valuable.

Discussion and Conclusion: Since many cardiovascular disease risk factors are preventable, lifestyle modification is very important.

Keywords: Lifestyle, Heart disease, Prevention

Calcium supplementation and risk of coronary heart disease

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Abstract

Background and aim: The essential role of calcium supplements in skeletal health is well established and are widely used. However, their contributing role in reducing cardiovascular disease (CVD) is currently a matter of debate. This review examines the preventive implications of calcium supplementation intervention on atherosclerosis and heart health.

Methods: A literature review was performed in medical databases, including PubMed, Scholar and the Cochrane Library. Keywords such as "calcium supplementation", "cardiovascular diseases" and "atherosclerotic risk" were searched.

Result: A paucity of suggests significant benefits of calcium supplementation in reducing the progression of atherosclerosis, or the incidence of CVD. The several pieces of evidence showed that high consumption of calcium supplements can be associated with possible cardiovascular risk. One of the possible mechanisms is progressive ectopic calcification of the arteries that can lead to CVD.

Conclusion: This review emphasizes the critical need to accurately interpret the role of calcium beyond bone health. While the skeletal benefits are undeniable, the cardiovascular consequences of calcium supplementation warrant a cautious, evidence-based approach. Future research and holistic assessment of dietary patterns are necessary for clear guidelines on calcium supplementation and prevention of potential cardiovascular damage.

Keywords: Calcium supplementation, Calcium intake, Atherosclerosis, Prevention, Cardiovascular diseases

Diagnosis and treatment of HTN

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Case 1: Hypertension in the Patient with Chronic Kidney Disease

A 51-year-old woman is referred to you to manage her high BP. She has had hypertension for more than 10 years, and has recently been told that her kidney function is reduced. She produces lab results, which show an estimated glomerular filtration rate (GFR) of 51 mL/min/1.73 m2. Her current medications include amlodipine 10 mg daily and occasional intranasal corticosteroids for seasonal allergies. Her family history is positive for hypertension in both parents and several siblings. At least two family members have been on dialysis in the past and have received a renal transplant.

Her physical examination shows BP of 136/82 mm Hg seated and 130/84 mm Hg standing. Her heart rate is 74 beats/minute in both positions. Her fundi show mild arterial narrowing; the rest of her examination is unremarkable.

An electrocardiography (ECG) shows nonspecific changes in the ST segment.

A urinalysis shows a trace of protein and no occult blood.

Case 2: Obstructive Sleep Apnea and Hypertension

is a 56-year-old male who comes to office for evaluation of difficult-to-control hypertension. His past medical history includes, hyperlipidemia, and obesity.

He reports feeling fatigued throughout the day and does not feel well rested when he awakens. He also endorses morning headaches. His wife, who accompanies him to the appointment, notes that he frequently snores throughout the night and sometimes gasps while sleeping.

His medications include hydrochlorothiazide 25 mg daily, valsartan 160 mg daily, aspirin 81 mg daily, and atorvastatin 40 mg daily. He has no known allergies.

His family history is significant for maternal hypertension and paternal

coronary artery disease.

On physical examination, he is afebrile. His heart rate measures 66 beats/min; his respiratory rate is 12 breaths/min; the blood pressure is 152/84 mm Hg; his oxygen saturation is 98% on room air. His body mass index (BMI) is 32.

General: Pleasant, obese male in no acute distress.

Head-eyes-ears-nose-throat (HEENT): Normocephalic. Pupils equal, round.

Neck: Trachea is midline, no jugular venous distention. No lymphadenopathy.

Cardiovascular: Regular rate and rhythm, no murmurs or gallops.

Respiratory: Lungs clear to auscultation bilaterally, no wheezes.

Abdomen: Obese but soft, bowel sounds present

Extremities: No cyanosis, clubbing or edema.

The use of artificial intelligence in nursing care of cardiac patients

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Introduction: Artifcial intelligence can assist providers in a variety of patient care and intelligent health systems. AI is a generic term for techniques used to teach computers to mimic human-like cognitive functions like reasoning, communicating, learning, and decision-making. The use of AI for healthcare purposes has been explored for decades. Specifcally in the nursing domain, AIHTs have already begun to influence nursing roles, workflows, and relationships with patients. Many different types of AI are used, including robotic devices, predictive analytics using machine learning, and virtual health assistants.

Methods: In this review article data collected by search data sources PubMed, EMBASE, the Cochrane Library, Scopus, CINAHL, using common keywords related to heart disease or cardiovascular diseases, artificial intelligence, Nursing care and then selected related article published between 2019 to 2023. 52 articles (quantitative, qualitative and mixed method studies) were included in this review.

Result: Findings showed that artificial intelligence can be used in providing car-

diac nursing care in the first and second prevention levels. The most used type of artificial intelligence was machine learning. The most common type of application was in the field of sending messages, images, and less about planning and scheduling nursing care. In direct nursing care of cardiac patients AI use to organize care, support caregivers of patients at home and prediction and prevention of complications such as falling, bedsores.

Conclusion: The world is changing and nursing care must change along with it. The Corona pandemic was a warning about the use of virtual and non-present methods to maintain and continue quality care for heart patients and showed the need to use artificial intelligence or similar methods. It is now necessary, paying attention to ethical and legal issues and do we need to change the definitions of nursing and nursing care? Can care through technologies also cover the emotional, spiritual and communication aspects of health? These questions require further investigation and evidence-based answers.

Key word: Artificial intelligence, Nursing care, Cardiac patients

Is fertility preservation an appropriate option for women with cardiovascular disease?

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Introduction: CVD is one of the main causes of indirect maternal mortality, and women with CVD should receive counseling on both maternal and fetal risks before pregnancy. Fertility preservation methods are used to maintain the reproductive power of people at ages when having children is delayed or not possible for any reason.

Methods: Using the database such as PubMed, google scholar and Medline with searching the keywords: Fertility preservation, cardiovascular, heart, disease

Result: Studies have shown that some heart diseases, including congenital heart diseases and cardiomyopathy, can affect the outcome of pregnancy and cause maternal death. In addition, fertility preservation methods can be useful for mothers whose physiological changes during pregnancy, especially changes in the cardiovascular system, are dangerous for them. It seems that the success and side

effects of fertility preservation treatments are more in younger patients and the absence of metabolic syndrome. Successful pregnancy has been reported in a transplanted heart and fertility preserved patient with non-Hodgkin's lymphoma.

Conclusion: cardiovascular disease has adverse pregnancy outcomes and it may to increase maternal and fetal mortality. Therefore fertility preservation is a methods that help them to be mother. However Fertility preservation treatment in cardiovascular disease requires a team approach.

Keywords: Fertility preservation, cardiovascular, heart, disease

Introducing IRAN-HEARTS project: an implementation research in primary health care

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4. Center for Noncommunicable Disease Control and Prevention, Ministry of Health, Tehran

IraPEN, as an adapted World Health Organization (WHO) PEN protocol for Iran, has integrated the management of four NCDs (CVD, diabetes, cancer, and chronic respiratory diseases) into the PHC since 2014 as a pilot and 2016 as a scale-up in at least one comprehensive health center in each university. To accelerate the reduction of the burden of CVD, WHO launched the Global Hearts Initiative in 2016, which provides a set of technical packages for the management and control of CVD and its risk factors at the population and health service level using highly cost-effective interventions. HEARTS modules are intended for use by policymakers and program managers at different levels within Ministries of Health who can influence CVD primary care delivery. All modules will require adaptation at the country level.

The IRAN-HEARTS project is an implementation research to adapt, implement and evaluate the HEARTS technical package of WHO in the primary health care system to improve the control of cardiometabolic risk factors in Iran. We planned to do the project based on the six modules of the HEARTS technical package

including "Healthy lifestyle counselling", "Evidence-based treatment protocols", "Access to essential drugs and equipment", "Risk-based CVD management", "Team-based care", and "Systems for monitoring and evaluation". The HEARTS-D added the "Diagnosis and management of type 2 diabetes" module to the HEARTS technical package and we considered its recommendations as well.

To achieve the goals of the study, seven steps have been designed which include 1- establishment of specialized working groups for analysis of the current situation and needs assessment, 2- development of updated and localized solutions, 3- conducting the necessary training and justification program for different groups, 4- piloting the program for one month, 5-implementation of the main phase of the study for one year, 6- evaluation of the effectiveness of the program, and 7- situation analysis after the implementation of the study. Currently (Dec 2023), the three first steps and a part of step 4 are completed for five health centers in Damavand, and the project has been suspended for some reasons, mainly because of the running of the National Campaign for Diabetes and Hypertension and its interference with the project's interventions.

Incidence, trajectory and trend of cardiometabolic disorders during two decades in the Tehran Lipid and Glucose Study (TLGS)

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The Tehran Lipid and Glucose Study is a population-based longitudinal cohort study that involved following up with over 15,000 individuals and conducting repeated measurements every three years for up to 25 years. This extensive data collection included various variables such as demographics, medical history, physical examinations, laboratory measurements, and incident hospitalization or death. The study aimed to measure the incidence of outcomes and their related risk factors and calculate the trajectory of diseases admirably, and also the trend of disease in the community over time, albeit with caution. Notably, the

study revealed a high incidence of cardiovascular diseases (CVD), premature CVD, diabetes, and hypertension, with rates such as 19, 6, 10, and 31 per 1000 person-years in men, and 11, 5, 11, and 29 per 1000 person-years in women, respectively. Additionally, the study identified a high incidence of pre-diabetes and pre-hypertension, with rates of around 46 and 76 per 1000 person-years in men, and 37 and 49 per 1000 person-years in women, respectively.

Measuring disease trajectory involves studying the patterns of disease progression in individuals, which can offer insights into the natural history of a disease and aid in enhancing treatment strategies. This opportunity is exclusively provided by longitudinal cohort studies. Unique results from the oldest cohort study in the West Asia and Middle East region include the trajectory of metabolic risk factors towards diabetes incidence, trajectories of CVD risk and their association with the incidence of CVD events, and the trajectory patterns of metabolic syndrome.

Trend analysis to evaluate the pattern of diseases or risk factors in a community is derived from repeated independent cross-sectional studies conducted at consecutive time points in a community, such as national STEPS surveys in Iran. However, a longitudinal cohort study with long-term time follow-up allows us to measure the trend of a disease by eliminating the age-effect and cohort-effect from period-effect. The trend analysis of cardiometabolic risk factors in both diabetic and non-diabetic populations over the last decade in TLGS is an example of such a work. Key findings from this analysis can provide valuable insights into the evolution of cardiometabolic risk factors and their impact on public health.

The Tehran Lipid and Glucose Study (TLGS) is among the rare valuable longitudinal studies in the world, especially in our region, which have provided valuable evidence regarding the incidence, trajectory, and trend of cardiometabolic disorders.

Pulmonary stenosis in neonatal period

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Critical pulmonary stenosis (PS) is one of the lifethreatening congenital heart diseases which present during the neonatal period with cyanosis. critical PS means when the degree of valvar pulmonary stenosis is severe enough to cause a decrease in right ventricular output, a larger than normal atrial right-to-left shunt is established. Suprasystemic right ventricle (RV) pressure may result in RV dilatation and failure with severe tricuspid regurgitation.

The main treatment goal is to achieve anterograde flow across the RVOT in the neonatal period, in order to improve systemic arterial oxygenation.

It could be achieved by surgical or transcatheter interventions which are mandatory in this critical CHD.

Since the discovery of balloon pulmonary valvuloplasty (BPV), it has replaced surgical approach for relieving PS.

These patients often remain duct-dependent despite successful right ventricular decompression, requiring additional pulmonary blood flow sources. In this setting, arterial duct (AD) stenting is currently deemed as the best cost-effective strategy to ensure a short-term additional pulmonary blood flow, leaving surgical systemic-to-pulmonary shunt as a valuable alternative only in selected cases.

Transcatheter interventions provide a number of benefits which are particularly important in critically ill patients. A catheter-based approach is less invasive, repeatable and offers potential anatomical benefits. It avoids cardiopulmonary bypass and therefore reduces neurodevelopmental issues

The aim of the present review, is to describe clinical, hemodynamic mechanisms, and the risk factors in patients with PS, describing possible role of NT-proBNP in identifying neonates with critical PS. & also defining some predictive markers of ductal dependency of pulmonary circulation by echocardiographic data.

The STEP-wise approach to non-communicable disease ris k factor surveillance (STEPS) 2021

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Abstract

Background: Regarding the growing burden of non-communicable diseases (NCDs) and exposure to their risk factors, and the continuous need for nation-wide data, we aimed to develop the latest round of the STEPwise Approach to NCD Risk Factor Surveillance (STEPs) survey in 2021 in Iran, while the COVID-19 pandemic was still present.

Methods: In addition to the three main steps of this survey, including question-naires, physical measurements, and laboratory assessments, we adapted the sur-vey with the situation caused by the COVID-19 pandemic, by adding to various aspects of study phases and changing some scientific and executive procedures in this round of STEPs survey in Iran. These changes were beyond the initial nov-elties embedded within the survey before the pandemic, by refining the study protocol benefiting from the previous experiences of the STEPs survey.

Results: By amending the required changes, we could include a total of 27874 indi-viduals in the first step of the survey. This number was 27745 and 18119 for the second and third steps. Comparing the preliminary results with the previous nationwide sur-veys, this study was highly representative on both national and provincial levels. Also, implementing the COVID-19 prevention and control strategies in all stages of survey led to the least infection transmission between the study investigators and participants.

Conclusion: The novel initiatives and developed strategies in this round of Iran STEPS survey provide a state-of-the-art protocol for national surveys in the pres-ence of an overwhelming catastrophe like the COVID-19 pandemic and the trig-gered limitations and shortages of resources.

Keywords: Iran, Non-communicable Disease, Population Surveillance, Risk Factors, STEPS, COVID-19

Tight blood glucose control, To Do or Not To Do

Marjan Jeddi

Associate Professor of Endocrinology and Metabolism, SUMS

The diabetes mellitus (DM) prevalence is still advancing and increasingly becoming one of the globally most severe and expensive chronic illnesses. The strong correlation between diabetes as well as the most prominent reason for diabetes and death in diabetic patients is cardiovascular disorders (CVD).

Early and intensive glycaemic control provides long-term protection against the development of microvascular complications, a phenomenon defined legacy effect. Whether a legacy effect of high glucose exists also on macrovascular endpoints is uncertain.

It is not well known how glycemic regulation correlates to CVD. Some research indicates that better glycemic regulation potentially improves CV results for DM patients.

Hypoglycemia is an inevitable complication of glucose-lowering treatment of diabetes, particularly with use of insulin and sulfonylureas, more so in combination therapy. In several studies, severe hypoglycemia has been identified as one of the strongest predictors of macrovascular events and risk of death in individuals with T2DM. Proposed mechanisms for adverse outcomes after hypoglycemia include increased inflammatory cytokines, prothrombotic milieu, and endothelial dysfunction.

Key is to avoid severe hypoglycemia and glycemic variability late in the course of disease (after 10 years), in elderly and in those with CVD or high ASCVD risk.

In this ever-evolving landscape of diabetes and cardiovascular care, a multidisciplinary approach that combines medical, psychological, and technological strategies is essential to reduce the burden of these noncommunicable diseases on a global scale.

Assessment and planning of primary MR

Saiedeh Jamshidi

the global burden of primary MR has increased worldwide: approximately 24 million people are affected, with higher absolute prevalence accompanying population aging . In high-income countries, primary MR is most commonly caused by myxomatous degeneration due to fibroelastic deficiency or Barlow's disease . Conversely, although the prevalence of rheumatic mitral heart disease has decreased, it still remains the main cause of MR in low- and middle-income countries , the prevalence of primary MR, mainly due to degenerative disease, was found to be approximatively 14%.Valvular regurgitation continiue to be an important cause of Morbidity and mortality . a careful history and physical examination remain essential in the overall evaluation and management of patients with suspected valvular disease, diagnostic methods are often needed and are crucial to assess the etiology and severity of valvular regurgitation, the associated remodeling of cardiac chambers in response to the volume overload, and the characterization of longitudinal changes for optimal timing of intervention. Etiologies of primary valve regurgitation are numerous and include degeneration, inflammation, infection,trauma, tissue disruption, iatrogenic, or congenital Surgical correction, preferentially by mitral valve (MV) repair when feasible, remains the sole effective treatment for patients with severe primary MR . The preservation techniques of MV repair based on the original principles of MV reconstructive surgery described by Carpentier have improved dramatically in recent years, together with surgeon experience . Consequently, the contemporary mortality risk of MV repair for primary MR is <1% for the vast majority of patients with primary MR . On the other hand, percutaneous transcatheter edge-to-edge repair (TEER) is now established as a validated treatment option in selected patients with a contraindication for surgery. accurate assessment of MR severity is today more important than ever in order to determine the best time for surgery in these patients . Transthoracic echocardiography (TTE) is the mainstay imaging modality for assessing the mechanism, etiology, severity, and repair probability of MR . When TTE is suboptimal or inconclusive for MR quantification, cardiac magnetic resonance imaging (CMR) and/or transesophageal echocardiography (TEE) provide complementary information. Indeed, TEE helps in grading MR severity,

although its strongest advantage over TTE or CMR is to offer a comprehensive assessment of the anatomical lesions and mechanism(s) of MR, especially when planning MV surgery.the purpose of this lecture is review of best planning and assessment for primary MR

Latest update on bifurcation lesions PCI

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Bifurcation lesions are common, accounting for approximately 20% of percutaneous coronary interventions . True bifurcations (Medina classification of 0,1,1, 1,0,1 or 1,1,1) have been associated with higher 36- month all-cause mortality and major adverse cardiovascular events (MACE) following treatment. When assessing a bifurcation lesion, numerous factors must be considered. A significant SB has been defined as one "that you do not want to lose in the global context of a particular patient (symptoms, location of ischaemia, branch responsible for symptoms or ischaemia, viability, collateral vessel, left ventricular function, and so forth) . SB ostial stenosis or occlusion occurs due to both carinal and plaque shift. IVUS study demonstrated that 85% of the loss of SB ostial lumen volume following MV stenting was due to carinal shift. But FFR studies have shown that despite significant angiographic appearances, isolated carinal shift is rarely associated with physiological significance, on the other hand, Significant SB FFR decreases are almost always accompanied by plaque shift. Both very narrow and very wide angles increase the likelihood of a poor outcome. A wide angle has been found to predict poor outcomes after culotte stenting due to the higher degree of stent deformation, and is a setting where outcomes may be better with the use of DK-crush, However, studies have also shown the potential for incomplete SB stent apposition with the crush technique in bifurcations >80°. Imaging includes IVUS & FFR are especially important in LM bifurcation PCI and results in reduced MACE & mortality. The provisional strategy (PS) is the most versatile technique for addressing bifurcation lesions. Routine SB predilation is not recommended by the European Bifurcation Club (EBC) due to potential SB dissection and occlusion.

MACE. After MB stenting and POT, In the absence of reduced TIMI flow, routine SB balloon dilation with sequential or kissing balloon has not shown any clinical benefit. Based on available studies, the recommendation for non-LMCA SB KBI is in the settings of TIMI flow 50-75% residual ostial LAD or LCx stenosis should undergo KBI. In the event of persistent SB TIMI flow

Use of ECMO and LVAD in heart failure patients before and after heart transplantation

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There are only 2 treatments for the thousands of patients who progress to the most advanced form of heart failure despite the application of guideline-based medical therapy, use of ventricular assist devices and heart transplantation. There has been a great deal of progress in both of these therapies that have led to improved outcomes including significant improvement in survival and functional capacity. Heart transplantation offers the best short- and long-term survival for patients with end-stage heart failure, and the majority of these recipients achieve relatively limitless functional capacity for their age. However, the chronic shortage of available donors limits the number of recipients in the United States but this shortage includes both donors and assist devices because of expensive devices in our country. The significant improvement in outcomes now possible with durable ventricular assist devices has led to a significant increase in their use, which now exceeds the volume of heart transplants in the world, with the greatest growth in use for those not considered to be candidates for heart transplantation, previously referred to as destination therapy. This lecture will review the substantial progress that has taken place for both of these life-saving treatment options, as well as the future directions.

Complex LM-Bifurcation PCI; what is the best strategy?

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Background: A 61-year-old female with a prior history of MVR (due to Severe Mitral stenosis) & CABG 1y ago, presented to emergency department with severe accelerated new onset angina, orthopnea & bilateral lower leg pitting edema from one week ago & admitted with the diagnosis of NSTE-ACS, complicated with acute decompensated heart failure. Her vital signs were as follows: blood pressure 110/70 mmHg, pulse rate 120 bpm and respiratory rate 22 breaths/min. Physical examination revealed tachycardia, Irregular beat & well defined mechanical prosthetic valve click in mitral position without murmur. Left radial pulse was not palpable. Electrocardiography displayed AF rhythm with rapid ventricular response & LBBB with secondary ST-T changes. Echocardiography showed dilated LV with severe systolic dysfunction (LVEF=20%), global hypokinesia & mechanical prosthetic valve in mitral position with normal function (MPG=3.5mmHg). Laboratory investigation revealed normal renal function (serum creatinine 1.5 mg/dl), high cardiac markers (Troponin I: 2.31 ng/ml, NT-proBNP : 19779 pg/mL) & INR in therapeutic range (2.9).

After stabilizing with appropriate medical treatment, the patient underwent coronary angiography which revealed severe three vessel disease with significant distal LM-Bifurcation stenosis (medina 1,1,1), subtotal stenosis of LAD at mid part & chronic total occlusion of RCA (Figure 1). LIMA had regressed due to severe stenosis of origin of left subclavian artery. SVG to RCA was also occluded.

Considering patient's comorbidities and the high risk of redo-surgery and according to the heart team's consultation, we decided to do PCI. At first, subtotal lesion of LAD at midportion was successfully revascularized with 2.75×16 mm sized supraflex stent implantation. For treatment of LM bifurcation lesion, two stent technique in a culotte fashion was performed. Both branches were pre-dilated. Then a 3.5×23 mm XIENCE Alpine (Abbott Vascular, Santa Clara, CA, USA) stent was deployed at 11 atm in LM to LCX. The stent was re-crossed and the un-stented branch was dilated with 2.0×12 mm non-complaint balloons. The 3.5×28 mm Supraflex stent was positioned towards the LM to LAD at 12 atm. The

first stent was re-crossed and final kissing balloon inflation was performed with two non-compliant balloons. Final proximal optimal technique (POT) was done with 4×8 NC balloon . Final angiography revealed successful result (Figure2). This patient was discharged 2 days after PCI and has been uneventful with good functional capacity.

Conclusion: LMCA bifurcation stenting is an effective revascularization procedure in high-risk patients who are not candidates for redo-bypass surgery. The culotte technique, although complex, ensured a complete coverage of left main bifurcation lesion with excellent results.

Key words: Left main PCI, culotte technique, coronary bifurcation
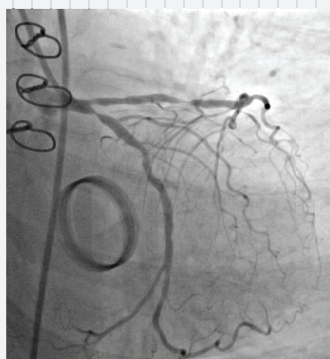
Figure 1
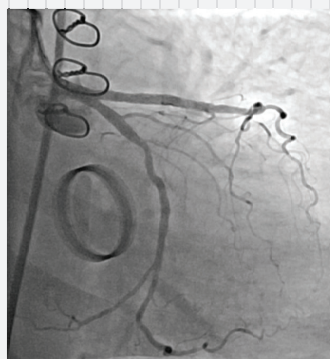
Figure 2

Systemic Hypertension in Children and Adolescent

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Introduction: Systemic hypertension in infants and young children is uncommon, with a prevalence of <1% but, when present often indicates an underlying disease process (secondary hypertension). Severe and symptomatic hyperten-

sion in children is usually caused by secondary hypertension. In contrast, the prevalence of primary hypertension, mostly in older school-age children and adolescents, has increased in prevalence in parallel with the obesity epidemic.

Definition: In children ages 1 to 13 years, BP levels defining hypertension are determined based on gender, age, and height in normal-weight children: Normal BP: both systolic BP and diastolic BP <90th percentile, Elevated BP (previously referred to as prehypertension): systolic BP and/or diastolic BP ≥90th percentile but <95th percentile or 120/80 mm Hg to < 95th percentile (whichever is lower), Stage 1 hypertension: systolic BP and/or diastolic BP ≥95th percentile to <95th percentile + 12 mm Hg or 130/80 to 139/89 mm Hg (whichever is lower), Stage 2 hypertension: systolic BP and/or diastolic BP ≥95th percentile + 12 mm Hg or ≥ 140/90 mmHg. Normal BP and definition of hypertension in adolescents older than 13 years old is similar to adults.

History and physical examination: Birth history should be documented to screen for prematurity and other perinatal events that may affect later BP. To differentiate primary from secondary HTN by looking for signs and symptoms that are associated with specific underlying etiologies for hypertension. Identify risk factors for HTN including family history of hypertension, obesity, sleep apnea, use of caffeinated drinks. Identification of comorbid cardiovascular disease (CVD) risk factors or diseases associated with a risk of CVD. Children and adolescents with primary hypertension are usually asymptomatic. These children may also be obese. Unless the BP has been sustained or is rising rapidly, hypertension does not usually produce symptoms. Therefore, clinical manifestations may instead reflect the underlying disease process, such as growth failure in children with CKD. Subclinical hypertensive target-organ injury is a common clinical manifestation in children with primary hypertension.

Elevated office BP readings should be confirmed using ABPM to identify children with white coat hypertension, who may not require further evaluation. Growth parameters should be determined to detect evidence of chronic disease. BP should be obtained in all 4 extremities to detect coarctation (thoracic or abdominal) of the aorta.

Laboratory evaluation and renal imaging: Unless the history and physical examination suggest another cause, children with confirmed hypertension

should have an evaluation to detect renal disease, including urinalysis, electrolytes, blood urea nitrogen, creatinine, and complete blood count. All hypertensive children should be screened for comorbidities that may increase cardiovascular risk, including dyslipidemia and glucose intolerance. A lipid panel is usually sufficient to screen for dyslipidemia. Standard renal ultrasound should be considered in patients with a higher suspicion of secondary hypertension to assess for discrepancies in renal size, structural abnormalities, and other potential causes of hypertension. Using echocardiography with pediatric normative data, left ventricular hypertrophy is detected in up to 40% of hypertensive children.

Nonpharmacologic and drug therapy: The mainstay of therapy for children with asymptomatic mild hypertension without evidence of target-organ damage is therapeutic lifestyle modification with dietary changes and regular exercise. Weight loss is the primary therapy in obesity-related hypertension. Indications for pharmacologic therapy include symptomatic hypertension, stage 2 hypertension without a modifiable risk factor, hypertension in patients with comorbidities such as diabetes (types 1 and 2) or CKD, and persistent hypertension despite nonpharmacologic measures.

Complications in Patent Ductus Arteriosus Occluder

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Abstract:

We reported some of our patients that complicated during patent ductus arteriosus (PDA) closure with Amplatzer or coil. 2 patients had device embolized to descending aorta. One of them had mismatch of sizing of device and PDA that pushed the device to pulmonary artery. Some patients had residual shunt after the procedure and need to use another device.

Conclusion: The most important problem during the procedure in pediatric cardiology is that the vessels are had small size and if the patient had any complications, we must use large equipments.

Keyword: Patent ductus arteriosus, Amplatzer, complication.

RV cardiomyopathy

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Arrhythmogenic right ventricular cardiomyopathy (ARVC) is characterized structurally by a progressive myocardial atrophy with fibro-fatty replacement of the RV myocardium. An ARVC diagnosis should be suspected in adolescents or young adults with palpitations, syncope, or aborted sudden death. The key elements of the diagnostic work-up for all patients with ARVC are defined by the diagnostic criteria used for the identification of affected individuals. The revised Task Force criteria for the diagnosis of ARVC published by Marcus et al. in 2010 have been used for the diagnosis of ARVC for more than a decade. More recently, the Padua criteria have offered an updated iteration to include LV involvement but are yet to be externally validated. Key elements of the diagnostic workup include ECG, Holter monitoring, cardiac imaging, genetic testing, and, in specific circumstances, EMB.

FETAL PULMONARY STENOSIS

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pediatric cardiologist

Arterial flow

However, in the fetal lamb, there are distinct differences between aortic and pulmonary blood flow patterns.

The ascending aortic velocity shows a slower rise at the onset of ejection, and peak velocity is achieved in about midsystole.

The peak of aortic velocity is close to the incisura on the downslope of the pulmonary trunk velocity tracing.

The aortic isthmus is relatively narrow, and it transmits only about 10% of CVO; it imposes some degree of obstruction to flow from the ascending to the descending aorta.

The right ventricle ejects predominantly through the ductus arteriosus to the descending

aorta, from which the relatively low-resistance umbilical-placental circulation arises.

Pulmonary stenosis can be an isolated cardiac anomaly or as part of other cardiac defects.

Isolated PS ------- 0.73 per 1,000 live births, second most common cardiac anomaly to VSD and accounts for 9% of live births with congenital heart disease

Valvar pulmonary stenosis:

fusion of the valve commissures (most common cause). On occasion, unfused, thickened dysplastic valve leaflets with associated pulmonary regurgitation. (with Noonan syndrome).

Infundibular pulmonary stenosis: is a typical feature of tetralogy of Fallot.

Infundibular thickening due to right ventricular wall hypertrophy is also a common cause of pulmonary stenosis in the recipient twin of twin–twin transfusion syndrome.

Cardiac Anomalies Associated with pulmonary stenosis :

Tetralogy of Fallot (TOF)

- Absent pulmonary valve syndrome (APV)
- Double outlet right ventricle (DORV)
- Tricuspid atresia with ventricular septal defect
- Ebstein anomaly, tricuspid dysplasia
- D-transposition of the great arteries
- Corrected transposition of the great arteries
- Heterotaxy with cardiac anomaly (right isomerism)

Prognosis and Outcome:

The course of pulmonary stenosis in utero is uneventful except in severe cases where progression may lead to an increase in the

severity of tricuspid regurgitation with subsequent

dilation of the right atrium,

Cardiomegaly,

heart failure.

Progression may also lead to the development of critical stenosis with progression to

pulmonary atresia with intact ventricular

septum (PA-IVS).

in utero treatment of critical pulmonary stenosis with balloon valvuloplasty

 When diagnosis of pulmonary stenosis was performed before 24 weeks' gestation, a 67% survival rate was reported in one series .

We recommend:

follow-up echo every 2 to 4 weeks on fetuses with pulmonary stenosis in order to assess peak velocities across the stenotic pulmonary valve, the

severity of tricuspid regurgitation when present, ante grade or retrograde flow in the DA, and

changes in tricuspid valve and right ventricular size.

Occurrence of retrograde flow in the DA   reduction of the right ventricular cavity are signs of worsening disease with poor

prognosis.

 Reverse flow in the ductus venous (DV) is a common finding in right heart obstruction and does not correlate with the prognostic outcome.

Mild forms may only need clinical follow-up with no intervention, whereas moderate to severe forms

require treatment primarily with balloon valvuloplasty with excellent results.

KEY POINTS Pulmonary Stenosis :

- four-chamber view (4CV) in pulmonary stenosis shows: right ventricular hypertro-phy(RVH) , tricuspid regurgitation (TR), which may lead to right atrial dilation (RAE).

- Direct visualization of the pulmonary valve: shows abnormal excursion, thickening, and doming of valve leaflets during systole.

 - three-vessel view (3VV) : post stenotic dilation

- Color and pulsed Doppler: diagnosis , severity of pulmonary stenosis.

Prognosis of isolated mild to moderate pulmonary stenosis is excellent.

Clinical prediction models for cardiovascular diseases in IRAN

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International guidelines suggest risk prediction models to guide treatment of risk factors for cardiovascular diseases (CVDs). For using a prediction model in a population, its performance should be assessed because a developed model may have under/overestimation that affects clinical decision-making.

The Framingham model was the first CVD model that was evaluated in Iran in 2012. The clinical usefulness of the Framingham model was calculated using net benefit. The results showed that the Framingham model was not useful at the 20% threshold, especially in women.

The clinical usefulness of the ACC/AHA guideline was assessed in 2015, using prospective data of more than 5000 participants in Tehran Lipid and Glucose Study. The results showed overestimation of the risk by 57% in men and 48% in women. A significant net benefit was shown for both moderate and intensive treatment; however, net benefit of intensive therapy was unclear in non-diabetic women. Based on the study, the ACC/AHA recommendations could be useful in Iranian population, with some overtreatment in women.

Framingham and ACC/AHA models estimate both fatal and non-fatal CVD events. Considering the occurrence of the majority of the premature deaths in low- and middle-income countries, and more easily recalibration of the models targeting CVD death, two well-known models to predict CVD mortality were assessed in 2020. Using data from four population-based cohorts (Tehran Lipid and Glucose Study, Isfahan Cohort Study, the second phase of the Golestan Cohort Study, and Shahroud Eye Cohort Study), SCORE and Globorisk models were recalibrated. Original Globorisk and SCORE models overestimated the CVD mortality risk in Iranian populations leading a higher number of individuals seeking interventions. The results showed the

better performance of the models after recalibration.

Prediction models for CVD mortality developed in high-income countries contain laboratory information, not suitable for resource-limited countries. So, in 2021 a non-laboratory model to predict CVD mortality was developed. Data of 45500 individuals aged 40-80 years from three cohort studies (Tehran Lipid and Glucose Study, Isfahan Cohort Study, and Golestan Cohort Study) were used to develop the model. The model showed good discrimination and calibration in both sexes. In all, the results showed that non-laboratory model can be used to screen and identify high-risk populations in low-middle income countries.

Another model was developed by World Health Organization and was adopted to the circumstances of 21 global regions in the world. The models were recalibrated using age- and sex-specific incidences and risk factor levels from different regions. The model was externally validated in different countries and Iran was one of the countries involved in this process. The results showed that using these models could improve the, feasibility, and sustainability of efforts to decrease the burden of cardiovascular disease worldwide.

Considering the variations, recalibration of the models based on the provincial in-cidences and risk factor levels can be helpful to enhance the accuracy of the CVD prevention programs in Iran.

Assessment and planning of functional MR

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Mitral regurgitation (MR) is a frequent complication of myocardial infarction (MI), severe coronary artery disease, and congestive heart failure that is associated with an adverse prognosis independent of underlying left ventricular dysfunction. Func-tional MR refers to the presence of MR without any structural abnormality of the mitral valve leaflets or chordal apparatus. Secondary MR is the more encompassing term, referring to the mechanism that is secondary to nonvalvular pathology (as opposed to primary MR), typically in the setting chamber dilatation caused by coronary artery disease, nonischemic cardiomyopathy, or congestive heart failure.

Resistance HTN

Dr seyedeh Mahnaz Mirbod

Resistant Hypertension

Case Presentation; we presented a 50 years old woman with obesity, hyperlipidemia and diet-controlled diabetes was referred to HTN clinic for the evaluation of resistant hypertension. Her blood pressure (BP) was uncontrolled on four medications, including a diuretic. Therefore various Laboratory investigations were performed. Finally, idiopathic adrenal hyperplasia was confirmed and treated medically with spironolactone but blood pressure remained elevated. Concurrent primary hyperparathyroidism was demonstrated by elevated calcium and parathyroid hormone levels and localized by sestamibi scan. Therefore, the patient subsequently underwent an uncomplicated left inferior parathyroid adenoma removal. Postoperative blood pressure measurements improved with systolic pressure between 123 mm Hg and 138 mm Hg, and her diastolic blood pressure was between 75 and 86 mm Hg.

Definitions of RH

Classification of RH

Pseudo RH
In adequate blood pressure regimen
White coat reaction
Medication nonadherence
Improper blood pressure measurement
True RH
CKD
Primary aldosteronism
Obstructive Sleep Apnea
Other secondary hypertension
Difficult primary hypertension

Prevalence of TRH

Among treated adults with hypertension, prevalent aTRH occurs in ≈12% to 15% of population-based, and 15% to 18% of clinic-based reports.

Prognosis of RH

Treatment Inertia

Lifestyle Factors

Obesity

Dietary Sodium

Physical Inactivity

Dietary Pattern and Other Risk Factors

Drug-Related RH

Obstructive Sleep Apnea

Secondary Hypertension

Evaluation and Management of RH

A young man with HCM and VF

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A young man with HCM and family history of SCD referred to us for ICD implantation. After ICD, he had a repeated admission for ICD shock. Starting amiodarone stopped the shocks, however he came back with hyperthyroidism. Treating hyperthyroid crisis, the same scenario of repeated shock unresponsive to multiple drugs. The analysis showed VF as a cause of these shocks.

The use of artificial intelligence in nursing care of cardiac patients

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Introduction: Artifcial intelligence can assist providers in a variety of patient care and intelligent health systems. AI is a generic term for techniques used to teach comput-

ers to mimic human-like cognitive functions like reasoning, communicating, learning, and decision-making. The use of AI for healthcare purposes has been explored for decades. Specifcally in the nursing domain, AIHTs have already begun to influence nursing roles, workflows, and relationships with patients. Many different types of AI are used, including robotic devices, predictive analytics using machine learning, and virtual health assistants.

Methods: In this review article data collected by search data sources PubMed, EM-BASE, the Cochrane Library, Scopus, CINAHL, using common keywords related to heart disease or cardiovascular diseases, artificial intelligence, Nursing care and then selected related article published between 2019 to 2023. 52 articles (quantitative, qualitative and mixed method studies) were included in this review.

Result: Findings showed that artificial intelligence can be used in providing cardiac nursing care in the first and second prevention levels. The most used type of artificial intelligence was machine learning. The most common type of application was in the field of sending messages, images, and less about planning and scheduling nursing care. In direct nursing care of cardiac patients AI use to organize care, support caregivers of patients at home and prediction and prevention of complications such as falling, bedsores.

Conclusion: The world is changing and nursing care must change along with it. The Corona pandemic was a warning about the use of virtual and non-present methods to maintain and continue quality care for heart patients and showed the need to use artificial intelligence or similar methods. It is now necessary, paying attention to ethical and legal issues and do we need to change the definitions of nursing and nursing care? Can care through technologies also cover the emotional, spiritual and communication aspects of health? These questions require further investigation and evidence-based answers.

Keyword: Artificial intelligence, Nursing care, Cardiac patients

Pulmonary valve stenosis intervention

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In recent years, one notable development is the refinement of balloon Valvuloplasty as a catheter-based treatment for pulmonary valve stenosis. This approach has gained prominence due to its effectiveness in relieving obstruction without the need for open-heart surgery, reducing associated risks and promoting faster recovery in pediatric patients. Advancements in catheter technology have also played a crucial role in enhancing treatment outcomes. The development of smaller, more flexible catheters allows for easier navigation through the delicate vasculature of pediatric patients. This minimizes the risk of vascular injury and facilitates precise positioning of the catheter for optimal results during interventions. In conclusion, the treatment landscape for pediatric pulmonary valve stenosis has undergone significant transformation with the advent of catheter-based interventions. From refined balloon Valvuloplasty techniques to the exploration of transcatheter valve replacement and regenerative therapies, these advancements underscore the commitment of the medical community to provide safer and more effective options for pediatric patients with pulmonary valve stenosis. Ongoing research and collaboration among pediatric cardiologists promise further innovation, with the ultimate goal of improving outcomes and quality of life for children affected by this condition.

"بسیج ملی کنترل فشار خون" اهداف، نتایج و ارزشیابی

دکتر افشین استوار

استاد اپیدمیولوژی دانشگاه علوم پزشکی تهران

مقدمه: بیماریهای قلبی عروقی و سکته مغزی علت اصلی مرگ و عامل حدود یک سوم از کل مرگ و میر انسان ها در جهان هستند. فشارخون بالا، یکی از مشکلات سلامت در سطح دنیا و مهم ترین عامل خطر در بروز سکته های قلبی و سکته های مغزی است. در جهان سالانه 4/10 میلیون نفر به علت فشارخون بالا می-میرند و 218 میلیون سال ناتوانی و مرگ زودرس (DALY) ناشی از آن به جا می-ماند. حدود نیمی از مرگ های ناشی از سکته های قلبی و مغزی به فشارخون بالا منتسب است. بر اساس مطالعات انجام شده در کشور، مرگهای منتسب به فشارخون روند فزاینده ای در کشور دارد که این روند در صورت عدم

مداخلـه مناسـب در سـالهای آینـده ادامـه خواهـد داشـت. بر اسـاس بـرآورد هـای انجـام شـده در سـال 1396 حـدود 97 هـزار نفـر بـه علـل منتسـب بـه فشـار خـون در کشـور جان خـود را از دسـت داده انـد. بر اسـاس نتایـج پیمایش ملی بیماری های غیرواگیر در سال 1400، 32% افراد 18 سال و بالاتر ایرانی به فشارخون بالا مبتلا هسـتند. «بسـیج ملی کنتـرل فشـارخون» بـا هـدف افزایـش نسـبت شناسـائی و شـروع مراقبـت و درمـان در بیمـاران مبتـلا بـه فشـارخون بالا در کشـور و افزایـش آگاهی جامعـه نسـبت به عوامـل خطـر، پیامدهـا و اهمیت تشـخیص زودرس و کنتـرل فشـارخون بالا توسـط وزارت بهداشـت، درمـان و آمـوزش پزشـکی جمهـوري اسلامي ایـران در سـال 1398 در سراسـر کشـور اجـرا گردیـد.

روش اجرا: گـروه هـدف "بسـیج ملی کنترل فشـارخون" کلیـه افراد 30 سـال و بالاتـر ایرانی و غیر ایرانی سـاکن در کشـور، بیمـاران کلیـوی و زنان بـاردار در همه گـروه های سـنی بود. این پویـش از تاریخ 27/2/98 لغایـت 15/4/98 در دو مرحلـه آمـوزش و اطلاع رسـانی و غربالگـری بـه اجـرا در آمـد. بـرای اجـرای ایـن پویـش فراخـوان و اطلاع رسـانی همگانـی از طریـق رسـانه ملـی و سـایر رسـانه هـا در سـطح کشـور و اسـتان هـا و فراخـوان از طریق پایـگاه هـای اینترنتـی و فضـای مجـازی و تولیـد پلاکارد، پوسـتر، بنـر و ... انجـام گردیـد. انـدازه گیـری و ثبـت فشـارخون در شـهرها و روسـتاهای کشـور از طریـق مراجعـه حضـوری بـه واحد هـای شـبکه بهداشـت و درمـان کشـور و ثبـت نتیجـه ارزیابـی در پرونـده الکترونیـک، مراجعـه حضـوری بـه سـایر واحد هـای ارائـه کننـده خدمـات بهداشـتی درمانـی یـا ایسـتگاه هـای موقـت سـنجش فشـارخون و ثبـت نتیجـه ارزیابـی در وبسـایتی کـه بـرای ایـن برنامـه تهیـه شـده و پـس از آن انتقـال اطلاعـات بـه پرونـده الکترونیـک فـرد و نیـز روش اجرای غیرحضـوری (خوداظهـاری در سـایت) انجـام گردیـد.

یافته ها: نتایـج نهائـی اجرای "بسـیج ملی کنترل فشـارخون" در کشـور حاکی از انـدازه گیری بیـش از 30 میلیون فشـارخون، شناسـائی بیـش از 6/2 میلیـون مـورد بـا فشـارخون بـالا، شناسـائی حـدود 10 میلیـون بیمار مبتـلا بـه پیـش فشـارخون بـالا، انـدازه گیـری فشـارخون در بیـش از 40000 پایـگاه ثابـت و موقـت فشـارخون، بـه کارگیـری حـدود 50 هـزار نیـروی داوطلب جهـت انـدازه گیری فشـارخون در ایسـتگاههای موقـت، ثبـت نام همه کسـانی که در کمپیـن شـرکت کرده انـد در سـامانه یکپارچه بهداشـت بود. بر اسـاس دسـتورالعمل پویش که بـه دانشـگاههای علـوم پزشـکی سراسـر کشـور ابلاغ گردیدی پـس از پایان پویـش پیگیری اصلاح سـبک زندگی در افـراد شناسـائی شـده مبتـلا بـه "پیـش فشـارخون"، پیگیـری کنتـرل فشـارخون در افـراد مبتـلا بـه فشـارخون بالا کـه فشـارخون آنهـا کنتـرل نیسـت، پیگیـری تشـخیص قطعـی و درمـان افـراد جدیـد شناسـائی شـده مبتـلا بـه فشـارخون بالا نیـز انجـام گردیـد. ارزشـیابی نتایـج پویـش در یـک مطالعـه مسـتقل بـر روی 10 هـزار نمونـه تصادفـی از جمعیـت کشـور نشـان داد کـه 64% مـردم پیام هـای منتقـل شـده در زمـان پویش را 3 مـاه بعـد از پایـان آن بـه خاطـر داشـتند و بیـش از 90% آنهـا با آن موافـق بودنـد. بر اسـاس نتایـج این ارزشـیابی همچنیـن بیـش از 90% افـرادی کـه بـرای اولیـن بـار در پویـش بـه عنـوان مشـکوک بـه فشـارخون بالا شناسـائی شـده بودنـد، بـرای تشـخیص قطعـی و دریافـت مراقبتهـای لازم بـه مراکـز درمانـی مراجعـه کـرده بودنـد.

نتیجه گیری: اجـرای پویـش هـای اطلاع رسـانی و انـدازه گیری فشـارخون می توانـد در حسـاس سـازی جامعـه، افزایـش آگاهـی عمومـی و بهبـود شناسـائی فشـارخون بالا در جامعـه موثر باشـد.

پیمایش ملی DiaCare و وضعیت شاخص‌های مدیریت و مراقبت دیابت در کشور

دکتر رامین حشمت

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چکیده: دیابت یکی از شایع‌ترین بیماری‌های مزمن و غیرواگیر بوده و تخمین زده شده که تعداد افراد مبتلا به آن تا سال ۲۰۳۰ به بیش از ۵۵۰ میلیون نفر خواهد رسید. شیوع دیابت در جمعیت بزرگسال ایران در سال ۲۰۱۶، ۱۱/۴٪ بود که در سال ۲۰۲۰ به حدود ۱۴٪ افزایش پیدا کرده است. به منظور تدوین و بکارگیری راهکارهای مناسب جهت درمان موثر و مبتنی برهدف مراقبت از دیابت در کشور بایستی ارزیابی دقیقی از وضعیت فعلی مراقبت و عوامل دخیل در آن صورت پذیرد. لذا مطالعه‌های ملی و مبتنی بر جمعیت براساس تفاهم نامه بین شرکت Sanofi و وزارت بهداشت، درمان و آموزش پزشکی به منظور ارزیابی وضعیت کنترل و مراقبت بیماران مبتلا به دیابت نوع دو در سطح استان‌های کشور انجام گرفت.

پیمایش ملی "مطالعه مشاهده‌های جمعیت محور مراقبت دیابت در ایران" بین سال‌های ۲۰۲۰- ۲۰۱۸ با عنوان اختصاری DiaCare انجام شد. با استفاده از نمونه‌گیری خوشه‌ای و چند مرحله‌ای در سطح هر خانوار، زنان و مردان با تشخیص قطعی دیابت نوع دو در محدوده سنی ۷۵-۳۵ سال وارد مطالعه شده و مورد پرسشگری، ارزیابی، اندازه‌گیری و آزمایش قرار گرفتند.

بر اساس پروتکل مطالعه، تعداد ۱۳۳۳۴ نفر مبتلا به دیابت نوع ۲ در ۳۱ استان مطالعه را تکمیل کردند. میانگین سنی شرکت کنندگان ۵۵ (انحراف معیار ۹/۴۴) سال و ۸۲/۸۰ درصد از مناطق شهری بودند. میانگین مدت زمان ابتلا به دیابت ۷۲ ماه و میانگین HbA1c درکشور ۸/۵۳ (انحراف معیار ۰/۰۹) درصد بود. نتایج نشان داد که ۲۶/۲۹ و ۳۳/۰۴ درصد از بیماران به ترتیب HbA1c و FBG کنترل شده داشتند. در همین حال، فقط ۵/۹۴ درصد از بیماران به هدف سه گانه کنترل دیابت در کشور دست یافته‌اند. حدود ۲۷ ٪ از زنان و ۲۵٪ از مردان دارای سطح کنترل شده HbA1c در کل کشور بودند. در مورد محل سکونت بیماران با سطح HbA1c کنترل شده، ۲۱/۹۷٪ در روستاها و ۲۷/۱۰٪ در شهرها زندگی می‌کردند.

این پیمایش ملی نتایج بسیار ارزشمندی را در مورد شاخص‌های مختلف مراقبت دیابت در کشور ارائه کرده و شیوه نمونه‌گیری آن به همراه روش‌های کنترل کیفی و نظارت جدی بر داده‌های مطالعه موجب شده تا یافته‌ها از دقت و صحت بالایی برخوردار باشند. این یافته‌ها به شناسایی چالش‌های مراقبتی و درمانی بیماری در کشور و نیز شناسایی عوامل مرتبط با دستیابی نامناسب به اهداف درمانی دیابت کمک شایانی می‌نمایند. لذا ضروری است تا به شیوه‌ای مناسب توسط سیاست‌گذاران و تصمیم‌گیران عرصه سلامت جهت طراحی مداخلات و بهبود وضعیت موجود بکار گرفته شوند.

Preventive Strategy in Reducing ASCVD Score in High Population

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ASCVD (Atherosclerotic Cardiovascular Disease) risk score is the assessment of a 10-year having a cardiovascular problem. It helps predicting them from the risk over the 10 years of stroke, heart attack and death. According to Shiraz Cohort Heart Study on the individuals between 40-90 years old, 74.5% of Shiraz population have less than 7.5%, 22.1% have 7.5-19.9%, and more than 3.4% have more than 20% percent chance of cardiovascular attack in next 10 years.

Two main risks which may coming back to normal in several months and returned ASCVD score from high to intermediate and from this zone to low score are hypertension and hypocholesteremia. Other risks such as diabetes and smoking takes several years to reduce ASCVD score; so, we recommend to focus on this two main risk factor and treat them in general population to reduce ASCVD score and chance of stroke and heart attack in several months.

Graft Dysfunction

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Development of ventricular dysfunction after heart transplant is different; Sometimes more responsive to treatment and sometimes more ominous.

Familiarity with this entity and its widespread differential diagnosis is needed for prompt treatment. Graft dysfunction can occur as early as intraoperative period to many years after transplant. Primary graft dysfunction, cardiac allograft rejection and cardiac allograft cardiac allograft vasculoparty are three important causes of graft failure and each of them has different diagnosis and treatment.

All aspects of graft failure will be discussed.

Virtual reality, A new method for patient education in cardiology

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Abstract

Introduction: Patients with heart diseases who are going to undergo heart surgical procedures experience a lot of anxiety.In addition, postoperative pain, anxiety and depression can also affect the patient's outcomes.The use of new patient education technique that combine haptic and visual methods and immerse the patient can be effective.

Methods: To address the aforementioned importance,was conducted a literature review about the application of virtual reality in patient education with heart diseases around the world in recent years. In December 2023, ProQuest, PubMed, web of science and Cochrane databases were searched to collect data. The search strategy based on the following key words: cardiac surgery, cardiology, virtual reality, patient education, pain and anxiety.The primary research resulted in 96 articles, after screening 38 articles were selected for full text review, and finally 17 articles were included in review.

Result:patients perceived VR to be an engaging and useful educational tool in their health care management.VR is used in healthcare through simulation for medical training and surgical planning, as well as in aspects of patient care such as pain management, fear,anxiety and depression disorders,participation in rehabilitation and the treatment process,and control of surgical complications.

Conclusion: Virtual reality can play a pivotal role in behavioral change. Therefore, it is a useful educational resource for patients. virtual reality can be used as an educational tool in hospitalized patients and outpatients of different ages, by conducting more research and studies on larger groups of patients, it can be used as a standard educational method.

Key words: Virtual reality, Haptic technology, Patient education

Poster Presentations

15th Middle East
Cardiovascular Congress(MECC)

8th Congress of
Clinical Cases in Complex
Cardiovascular Theraputics (CCCCT)

3rd Student Conference

The Effect of Emotional Expression Technique on Anxiety, Heart Rate, Blood Pressure and O2 Saturation Amongst the Elderly Patients Hospitalized For Coronary Angiography

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Introduction: Considering the high prevalence of invasive diagnostic methods, including angiography, in the elderly, the utilization of non-pharmacological interventions can potentially be beneficial in reducing the complications associated with these procedures. This study aimed to determine the effect of emotional expression technique on anxiety, heart rate, blood pressure and o2 saturation amongst the elderly patients hospitalized for coronary angiography.

Material and Methods: This study was a clinical trial in which elderly patients undergoing angiography were randomly divided into two groups of 30 people (control and intervention). In the intervention group, one hour before the angiography, they received the emotional expression technique in two time periods: immediately and one hour after. Before and after the intervention, Spielberger's situational anxiety questionnaire and their heart rate, blood pressure, and arterial oxygen saturation were measured.

Results: Before the intervention, there was no difference between the two groups in terms of anxiety level, heart rate, systolic and diastolic blood pressure, and arterial blood oxygen level; But after the intervention in the intervention group, anxiety level ($P < 0.001$), heart rate ($P = 0.01$), systolic blood pressure ($P < 0.001$), and diastolic blood pressure ($P < 0.001$) The significance was lower than in the control group, while the arterial blood oxygen level in the intervention group was higher than in the control group ($P < 0.001$).

Discussion and Conclusions: The results of this study showed that the emotion release technique affects reducing the levels of anxiety, heart rate, systolic and diastolic blood pressure, as well as increasing arterial oxygen saturation in elderly patients undergoing angiography. These findings suggest that the technique can be utilized as an effective non-pharmacological method for these individuals.

Keywords: Coronary Angiography, Emotional Expression Technique, Anxiety

Self-management Education for Hypertension, Diabetes Mellitus, and Hyperlipidemia as Leading Risk factors of Cardiovascular Disease: Stakeholders' Experiences and Expectations

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Background: Hypertension, diabetes, and hyperlipidemia are major risk factors for cardiovascular diseases, which are the leading cause of premature death in various societies. These risk factors are also chronic diseases themselves, which require effective self-management strategies to control them. Such strategies can reduce complications and improve the quality of life for patients with these conditions. This study aims to explain stakeholders' experiences and expectations regarding self-management education for hypertension, diabetes mellitus, and hyperlipidemia to generate valuable insights for the design of effective self-management programs.

Methods: This study adopted a qualitative Grounded Theory approach to explore the experiences and perspectives of three groups of stakeholders: 19 patients with cardiovascular diseases/diabetes mellitus, 11 primary healthcare professionals, and 5 provincial health policymakers and managers. Data were collected through semi-structured interviews and focused group discussions and analyzed using Corbin and Strauss's coding principles with ATLAS.ti Version 9.0 software. Patient interviews and professional focus groups were coded separately.

Results: The central concept was "effective self-management education" which consists of four main themes:1- Effective content design, 2-Effective presentation, and implementation, 3-Characteristics and conditions of the parties involved in education, and 4-Educational needs.

Conclusion: The central concept and its four main themes were consistent among stakeholder groups (patients and professionals), but there were differences in the subthemes. This highlights the need for a thorough examination of perspectives from all stakeholders. Developing an effective self-management education requires recognizing that while overarching concepts may seem clear, a comprehensive exploration is necessary to understand the details that contribute to educational efficacy. A nuanced understanding of these details is vital for op-

timal design and implementation. To enhance the quality and effectiveness of education, a comprehensive approach should go beyond traditional instruction, focusing on effective communication, interaction, indirect methods, and active monitoring.

Keywords: self-management education, cardiovascular diseases, Heart diseases, cardiovascular risk factors, diabetes mellitus, hypertension, hyperlipidemia

7,8 benzoflavone as a natural inhibitor of Cox-2; A molecular docking study

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Background: One promising area of research is the use of cox inhibitors in the treatment of heart disease. Flavones are a natural alternative to traditional cox inhibitors. Furthermore, they have attracted much attention due to their anti-angiogenic, antioxidant, and anti-inflammatory activities. This study aimed to study the interaction of 7,8-benzoflavone with Cyclo-oxygenase 2 (Cox-2).

Methods: Molecular docking was carried out on 7,8-benzoflavone and Cox-2 by SwissDock to determine the interaction energy between the protein and ligands. The protein is taken from RCSB PDB and the ligand extracted from ZINC15 database. Ligand and protein preparation, analyzed and visualized docking results were carried out with the Chimera 1.14.

Results: Our data revealed the favorable binding conformation of 7,8-benzoflavone in the active site of Cox-2. It showed reliable binding energy – 7.6 kcal/mol with SwissDock .More interactions are and entropy driven and induced be hydrophobic forces.

Conclusion: 7,8-benzoflavone may be introduced as a natural inhibitor of Cox-2. However, more in-vivo and in-vitro studies are needed to determine their efficacy.

Keywords: Inflammation, Heart disease, Molecular docking, Cox-2 inhibitors.

Autoimmune Diseases and Cardiovascular Health: Unveiling the Risks, Prioritizing Prevention, and Charting Future Directions

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Introduction: Autoimmune disease is a major global health burden that affects approximately 5% of the population. Cardiovascular disease is the leading cause of mortality, and its prevalence is markedly increased in patients with autoimmune diseases. Chronic and systemic inflammation, largely attributed to pro-inflammatory cytokines and autoantibodies, is thought to be underlying the observed association.

Method: Nine databases (PubMed, Scopus, Google Scholar, Cochrane Library, Magiran, SID, Medline, Embase, and Lilacs) were searched to assemble a cohort of individuals newly diagnosed with any of 19 autoimmune disorders between 01/01/2000 and 31/12/2022. We investigated the incidence of twelve cardiovascular outcomes and used Cox proportional hazards models to examine differences in patients with and without autoimmune disorders. In sensitivity analyses, models were further adjusted for known cardiovascular risk factors.

Results: There is limited awareness of the link between autoimmune diseases and cardiovascular issues and patients with autoimmune diseases often do not receive preventive measures for cardiovascular health. Furthermore, it was confirmed that in many studies younger individuals (<45 years) with autoimmune diseases have a significantly greater excess cardiovascular risk compared to older individuals. Autoimmune diseases contribute to premature cardiovascular disease, potentially leading to a disproportionate loss of years of life and disability. In terms of sex women with autoimmune diseases like systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), and inflammatory bowel disease (IBD) are at higher risk of developing cardiovascular disease compared with men. Chronic inflammation, even without traditional cardiovascular risk factors, increases the risk of cardiovascular events. Also, autoimmune treatments may make patients more susceptible to infection-related heart disorders. Managing high blood pressure is

crucial in the treatment plan for patients with autoimmune diseases. The adaptive immune system's role in hypertension development is highlighted, emphasizing the importance of controlling blood pressure for cardiovascular and renal health. **Conclusion:** This study suggests that strategies to reduce cardiovascular risk should be a routine part of autoimmune disease management. Managing underlying autoimmune conditions is integral to cardiovascular health, especially in women. Further research is needed to understand the causes of cardiovascular conditions associated with autoimmune diseases and potential treatments.
Keyword: Autoimmune disease, Cardiovascular disease, blood pressure, Chronic inflammation

Design of New Inhibitory Ligand of Voltage-dependent Calcium Channel to Reduce Blood Pressure Using Bioinformatics Tools

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Introduction: Hypertension, a significant risk factor for heart attacks and premature death, affects a large portion of the global population. Many people rely on modern medications like calcium channel blockers (CCBs) to control their blood pressure. CCBs work by blocking the entry of calcium ions into smooth muscle cells, resulting in vasodilation and lower blood pressure. Recent research suggests that Thymol, derived from Nigella_sativa, can also inhibit calcium ion channels, leading to vasodilation and decreased blood pressure. Likewise, Carvacrol, a monoterpenic phenol found in various herbal oils, has demonstrated cardiovascular effects such as fibrinolysis, vasorelaxation, and the reduction of blood pressure in previous studies. This study aims to lower blood pressure with the new ligand compared to two antihypertensive ligands Thymol and Carvacrol.
Methods: This research project used PubChem and PDB to analyze the structure of Voltage-dependent L-type calcium channel/7UHF. In addition, the new ligand designed by ChemDrow and Chem3D. Molecular docking was screened using iGEMDOCK version 2.1 with docking accuracy settings (GA parameters): population size300, generations70, and the number of solutions3. The calculated ligand receptor (protein) interaction energy is represented by docking scores (DOS). More negative scores indicate a stronger likelihood of binding.
Results: The binding of Voltage-dependent L-type calcium channel/7UHF pro-

tein to two selected ligands was investigated. The energy levels of both ligands Thymol (-61.52) and Carvacrol (-62.53) exhibit a low magnitude. However, leveraging the characteristics of these two ligands, a sophisticated ligand was designed, leading to the discovery of the 1,5-diisopropyl-4,8-dimethylnaphtha-lene-2,7-diol ligand with enhanced energy yield (-87.12) and superior outcomes. Hence, the discernment of the most efficacious ligand for the 7UHF protein was achieved when compared to Thymol and Carvacrol. Ligand properties:

Chemical Formula: $C_{18}H_{24}O_2$, Exact Mass: 272/178, Molecular Weight: 272/388

Conclusion: The findings revealed that novel ligand which designed for the study can be a potent inhibitor of hypertension. Among them, the protein Voltage-dependent L-type calcium channel (7UHF) derivative may be the more effective for the treatment of the disease. Based on the findings. It is recommended that in-vitro and in-vivo studies be carried out to determine the efficacy of this ligand against hypertension disease.

Keywords: Thymol, Carvacrol, Drug-design, Molecular-docking, Voltage-dependent calcium channel, Hypertension

Investigating the relationship between HbA1c levels and coronary blood flow velocity in STEMI patients with a history of diabetes.

Mohammad Mohammadi

Background and Objective: Reduced coronary blood flow velocity and myocardial perfusion are indicative of insufficient myocardial profusion in the absence of angiographic evidence of obstruction. Patients with diabetes are predisposed to adverse events and congestive heart failure. Diabetes is a common disease that weakens the immune system and is a risk factor for ischemic heart disease. HbA1c is one of the sensitive and convenient markers for predicting and determining diabetes treatment. Since there is limited and conflicting research on the impact of HbA1c and diabetes in diagnosing reduced coronary blood flow, a study was conducted to investigate the relationship between HbA1c levels and coronary blood flow velocity in STEMI patients with a history of diabetes.

Materials and Methods: In this prospective cohort study, 180 consecutive patients (120 men, 60 women; age range 30-70 years) who presented to Farsh-chian Hospital in Hamedan in 2022 with acute myocardial infarction with ST-segment elevation and a history of diabetes were randomly assigned to three groups of 60 individuals each based on HbA1c levels (Group 1: HbA1c < 5.6, Group

2: HbA1c between 5.6 and 6.5, Group 3: HbA1c > 6.5). Subsequently, patients underwent echocardiography, angioplasty, and TIMI frame count to determine the slow flow in the circumflex, right coronary, and left descending anterior coronary arteries. Finally, the results of the tests, demographic information, and risk factors were collected using a checklist and analyzed statistically using STATA17 and ANOVA test.

Results: None of the patients had abnormal echocardiographic findings. The mean TIMI frame count for the left descending anterior, circumflex, and right coronary arteries in the three groups was as follows: Group 1: 7±20, 5.5±18, and 8.8±20; Group 2: 8±21, 8.8±20, and 9.9±21; Group 3: 5.9±23, 5.10±20, and 10.3±23. Therefore, groups 2 and 3 had relatively similar TIMI frame counts for all three coronary arteries, but both groups had significantly higher TIMI frame counts compared to Group 1 ($P<0.05$).

Conclusion: The present study showed that coronary blood flow velocity in pre-diabetic patients is slower than in non-diabetic patients and relatively similar to diabetic patients. Therefore, endothelial dysfunction is evident in the pre-diabetic stage. Furthermore, the results demonstrated a strong correlation between HbA1c levels and coronary blood flow velocity.

Keywords: Coronary blood flow velocity, diabetes, HbA1c, pre-diabetes.

Comparative study of financial costs of hospitalization, mortality and readmission in patients with acute myocardial infarction

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introduction: The reopening of blocked vessels in myocardial infarction can be achieved through invasive and non-invasive methods. This study aimed to comparison hospitalization cost, one-year mortality and readmission in different treatment interventions for patients with acute myocardial infarction.

Materials and Methods: This cross-sectional and retrospective study examined the Hospitalization data of 252 myocardial infarction patients referred to Ayatollah Mousavi Hospital from April 2021 to March 2022. The patient's demographic information and clinical outcomes such as hospitalization cost, one-

year mortality and re-hospitalization due to heart problems in different treatment methods of acute myocardial infarction were assessed. The data collected was analyzed using SPSS version 22 statistical software.

Results: The average hospitalization cost in the primary angioplasty group was higher than the thrombolytic group and the medication group, but this difference was not statistically significant (P=0.213) .One-year mortality occurred in the medication group (22.9%) more than the primary angioplasty (11.3%) and thrombolytic (10.1%) groups, and this difference was not statistically significant (P=0.085) .The rate of re-hospitalization within one year in the thrombolytic group (33.7%) was higher than the primary angioplasty group (33.0%) and medication group (16.6%), but this difference was not significant (P=0.083).

Discussion and Conclusion: There were no outcomes differences between patients treated with primary angioplasty and thrombolytic therapy. Thrombolytic therapy remains a viable alternative to primary angioplasty when timely intervention is not feasible**.**

Keywords: Myocardial infarction, mortality, readmission, hospital Costs

The correlation of insulin resistance and tryptophan catabolites with the pathophysiology of preeclampsia

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Introduction: Preeclampsia (PE) is a systemic disorder of pregnancy, characterized by proteinuria and hypertension in the third trimester and associated with widespread endothelial damage and future cardiovascular disease. The consequences of developing PE can be severe, leading to maternal and newborn complications and deaths, including placental abruption, preterm birth, fetal growth restriction, stillbirth, and maternal death. The pathogenesis of PE is believed to originate from oxidative stress-induced placental injury or hypoxia, leading to the release of a maternal systemic anti-angiogenic imbalance. The present study aimed to investigate the correlation of insulin resistance (IR) and Tryptophan

catabolites (TRYCATs) with pathophysiology of PE.

Methods: This case-control study recruited sixty women with PE and sixty healthy pregnant women as a control group. Serum levels of TRYCATs (tryptophan (TRP), kynurenine (KYN), kynurenic acid (KYNA), and 3-hydroxykynurenine (3-HK)) and IR were measured by ELISA and spectrophotometric methods.

Results: From the outcomes of the current investigation, the PE women have a considerably lower TRP level and higher KYNA, KYNA/KYN, KYN/TRP, and 3-HK levels than the healthy pregnant women. Also, the results demonstrated direct association of IR and TRYCATs with clinical data and each other, demonstrating the importance of these parameters in the pathophysiology of PE. The ROC analysis showed that an IR state was a predictor of PE illness in suspected.

Conclusion: In a suspected woman, the results suggested that the increase in 3-HK and decrease in TRP are the best variables for PE diagnosis. However, the specificities and sensitivities are modest.

Keywords: High pressure, Pregnancy, Endothelial damage, Preeclampsia.

Prevalence and trend of multiple coronary artery disease risk factors and their 5-year incidence rate among adult population of Kerman: Results from KERCADR study

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Background: Coronary artery diseases (CADs) are the most important noncommunicable diseases (NCDs), which cause the highest number of deaths around the world. Hypertension (HTN), dyslipidemia (DL), diabetes mellitus (DM), obesity (OB), low physical activity (LPA), smoking, opium consumption (OC) and anxiety are the most important CAD risk factors, which are more dangerously present in combination in some patients.

Methods: A total of 5835 people aged 15 to 75 years were enrolled in the phase 1 (2012) and followed up to the phase 2 (2017) of the population-based

Kerman coronary artery diseases risk factors study (KERCADRS). The prevalence and pattern of different combinations of CAD risk factors (double to quintuple) and their 5-year incidence rates were assessed.

Results: The prevalence of single CAD risk factors (RFs) in phase 2 was 50.2% (DL), 47.1% (LPA), 28.1% (abdominal obesity), 21.2% (OB), 16.5% (HTN), 9.2% (smoking), 9.1% (OC), and 8.4% (DM). The most frequent combination of risk factors was LPA plus DL (23.9%), metabolic syndrome (19.6%), and DL plus OB (17.8%). The 5-year incidence rates of multiple comorbidities (in persons per 100 person-years) was DL plus LPA (2.80%), HTN plus DL (1.53%), and abdominal obesity (AOB) plus DL (1.47%). The most participants (84.4%) suffered from at least one RF, while 54.9% had at least two and 29.9% had at least three RFs.

Conclusion: The results showed that a large portion of the study population suffers from multiple CAD RFs. The findings underscore the importance of identifying multiple CAD risk factors to reduce the overall burden of these NCDs.

Keywords: coronary artery disease, prevalence, incidence rate, multiple risk factors, KERCADR study.

Prehospital and Clinical Factors Associated with Major Adverse Cardiovascular Events (MACE) in ST-Elevation Myocardial Infarction Patients: A Prospective Cohort Study

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Introduction: Coronary artery disease (CAD) and acute coronary syndromes (ACS) are significant global health concerns associated with high morbidity and

mortality rates. This study aims to investigate the predictors and associated factors of major adverse cardiovascular events (MACE) in patients admitted to Isfahan city hospitals with ST-segment elevation myocardial infarction (STEMI).

Materials and Methods: This prospective analytical study included all STEMI patients admitted to Isfahan City hospitals from March 2017 to March 2019. Data collection covered demographic information, prehospital features, patient prognosis, and potential confounding variables. Patients underwent two years of follow-up, with MACE evaluated twice, once during hospitalization and two years afterward. MACE in this study is defined as nonfatal stroke, nonfatal myocardial infarction, cardiovascular death, and hospitalization resulting from heart failure or ACS.

Results: Of 1869 identified STEMI patients, 866 met the study criteria and were included in the investigation. Patients who experienced in-hospital MACE (13.9%) were older and predominantly male. They had higher baseline creatinine levels, lower hemoglobin levels, a higher prevalence of diabetes, and lower levels of systolic blood pressure (SBP). Longer hospital stays were associated with in-hospital MACE. After 2 years of admission, MACE has occurred in 10.2% of our cases. significantly most of them had experienced anterior STEMI. There was no significant association between MACE and factors related to time intervals for medical interventions.

Discussion and Conclusion: This study reveals that older age, elevated creatinine, reduced hemoglobin, diabetes, longer hospital stays, decreased SBP, and occurrence of anterior STEMI are significantly associated with MACE in STEMI patients. These findings align with existing literature on MACE predictors, confirming the importance of these factors in assessing cardiovascular risk. However, further research should consider socioeconomic factors, medical histories, and evolving risk factors during follow-up.

Keywords: Major Adverse Cardiovascular Events (MACE), ST-segment Elevation Myocardial Infarction (STEMI), Prehospital Characteristics, Cardiovascular Risk Factors, Prospective Cohort Study

Vasorelaxing Activities of Some 1,2,3-triazole Derivatives in Isolated Rat Thoracic Aorta

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Introduction: Triazole-based scaffolds are exciting pharmacophores with a wide range of biological activities such as anticancer, antituberculosis, antifungal, antibacterial and anti-HIV. In this research, in vitro vasorelaxing activities of some 1,2,3-triazole derivatives were evaluated on isolated rat thoracic aorta.

Materials and Methods: 1,2,3-triazoles were synthesized via a one-pot, two-step, mild and eco-friendly method from epoxides, alkynes and sodium azide in the presence of Cu_2O under ultrasonic irradiation in water at room temperature .

Thoracic aorta rings from normal male Sprague-Dawely rats were suspended in organ bath for isometric tension recording. The aorta rings were pre-incubated with phenylephrine (10^{-7}-10^{-6} M) to induce maximal contraction. Afterwards, cumulative concentrations of the newly synthesized compounds (10^{-9}–10^{-4} M) or acetylcholine (10^{-9}–10^{-4} M) were added to the organ bath solution. Dose-relaxation responses of the 1,2,3-triazole derivatives and acetylcholine were performed at the plateau of contractile response to phenylephrine. The $IC_{50\%}$ (concentrartion that caused 50% relaxation) and maximal response (Rmax) achieved for each compound were compared with those of acetylcholine as a reference standard for vasodilating activity.

Results: The results showed that the $IC_{50\%}$ of compounds 3f (6.72±0.64), 3g (6.94±0.76), 3l (7.28±0.52) were significantly more than that of Ach. The maximal responses of compounds 3f (92.66±7.33), 3l (96.57±3.42) were comparable to relaxing effect of Ach (90.66±4.17).

Discussion and Conclusion: The findings of our study revealed that all of the 1,2,3-triazole compounds did have vasorelaxing activities on isolated rat thoracic aorta and could be considered as good candidates for future studies in order to development of new antihypertensive drugs.

Key words: Triazoles, Vasodilating activity, Thoracic aorta

The Effect of 12 Weeks High Intensity Interval Training on sICAM-1 and VCAM-1 in hypertensive women

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Introduction: The increase in the amount of inflammatory indicators such as Intercellular adhesion molecule 1 (ICAM-1) and Vascular cell adhesion molecule 1 (VCAM-1) in patients with high blood pressure plays an important role in the development of endothelial disorder or atherosclerosis. Due to the increasing prevalence of high blood pressure along with its side effects, its prevention and treatment are very important. Exercise is a non-pharmacological method for treating hypertension. The purpose of this study is the effect of 12 weeks of high intensity interval training (HIIT) on sICAM-1 and VCAM- in women with hypertension.

Materials and Methods: In this semi-experimental study, 30 women with an average age of 45 ± 5 years with only prehypertension to first degree hypertension (systolic blood pressure 138 ± 2 mmHg and diastolic blood pressure 89 ± 2 mmHg) without any underlying disease were randomly divided into two groups (HIIT=15, control=15). The HIIT training protocol consisted of 4 intervals of 4 minutes with an intensity of 95-85% HRMAX with 3 minutes of active rest between intervals with an intensity of approximately 70% HRmax, and during this period the control group was without any specific sports activities. Factors sICAM-1 and VCAM-1 were investigated before and after 12 weeks in women with high blood pressure. A two-way ANOVA were used to data analysis with significance level ($P<0.005$).

Results: The results indicated a significant decrease in sICAM-1 and VCAM-1 in the HIIT training group compared to the control group ($P<0.005$).

Conclusions: HIIT exercises improve the inflammatory profile and endothelial

function of women with hypertension. As a result, performing these exercises can be very useful in the prevention and treatment of complications associated with high blood pressure in these patients.

Keywords: Hypertension, high intensity interval training, Intercellular adhesion molecule 1 (ICAM-1), Vascular cell adhesion molecule 1 (VCAM-1)

Age-, sex-, and height-based blood pressure reference charts, Yazd children 6-18 years, Iran

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Introduction: Pediatric hypertension is the main cause of morbidity and mortality in pediatric populations. Purpose: To examine pediatric hypertension in a clinical setting, we used the percentile rank approach and defined hypertension as above the 95th percentile.

Materials and Methods: The present study was linked to the national analytical cross-sectional community-based Iranian Children and Adolescents' Psychiatric Disorders (IRCAP) survey. The survey was nationwide and funded by the National Institute of Medical Research Development. The IRCAP survey included 31,000 children and adolescents aged 6–18 years in all 31 Iran provinces. The current study included 1,035 children and adolescents and linked the data of the risk factors of cardiovascular disease only in Yazd province via random cluster sampling.

Results: Of the total participants, 456 (44.1%) were male and 579 (55.9%) were female. The mean age was 11.2 ± 3.8 years (11.7 ± 3.7 years for males, 11.0 ± 3.6 years for females), while mean height was 146 ± 20.0 cm overall, 147.2 ± 22.0 cm for males, and 144.6 ± 17.0 cm for females (P=0.009). The blood pressure distributions and percentiles were evaluated.

Discussion and Conclusion: Here we determined age- and height-specific 50th, 90th, 95th, and 99th percentiles of systolic and diastolic blood pressures in Yazd boys and girls using 10-cm height intervals. We predict this simplified chart

will make physicians' diagnosis of BP abnormality and hypertension in children more accruable estimates.

Keywords: Hypertension, Blood pressure percentile chart, Adolescence

Relationship between Anxiety Disorders and Anthropometric Indices, Risk Factors, and Symptoms of Cardiovascular Disorder in Children and Adolescents

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Introduction: Anxiety is an unpleasant feeling characterized by symptoms of tachycardia, sweating, and stress. The exact relationship between anxiety and cardiovascular disorder is not well distinguished. The present study aimed to evaluate the relationship between anxiety disorders and anthropometric indices and risk factors, including fasting blood sugar (FBS), hyperlipidemia, and hypertension, according to the results, FBS low-density lipoprotein (LDL) and symptoms of cardiovascular disorder in children and adolescents aged 6 to 18 years.

Materials and Methods: This is an analytical cross-sectional study that used the data set of the Iranian Children and Adolescents Psychiatric Disorder (IRCAP) Survey in Yazd province. In this community-based study, a multistage cluster sampling method was used. We randomly selected 1174 children and adolescents who were referred to Afshar Hospital in Yazd, then, 167 blocks were randomly collected by each cluster head. Each cluster consisted of 6 cases, including three cases of each gender in different age groups (6-9, 10- 14, and 15-18 years). The clinical psychologists instructed the participants to complete the Persian version of Kiddie-Schedule for Affective Disorders and Schizophrenia - Present and Lifetime version (K-SADS-PL). In addition, cardiovascular risk factors were determined for participants, and demographic data were obtained from the participants.

Results: A total of 1035 children and adolescents participated in this study. The results showed that 228 of the participants (22.2%) suffered from anxiety disor-

der. There was an indirect significant correlation between anxiety disorder and the symptoms of heart palpitation, shortness of breath, and chest pain. There was no statistically significant relationship between the different types of anxiety disorders and FBS, hyperlipidemia, and hypertension. According to the results, FBS and LDL are a predictor for anxiety disorders.

Discussion and Conclusion: There was a statistically significant association between anxiety in children and adolescents and some risk factors for cardiovascular disorders. Also, this study introduces some cardiovascular predictors of anxiety such as FBS, cholesterol, and LDL. However, further studies are needed in this regard.

Key words: Adolescent; Anxiety Disorders; Cardiovascular Disorder; Child; Risk Factors

Prevalence and Predictors of Dyslipidemia in Children and Adolescents in Yazd Greater Area, Yazd, Iran

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Introduction: Dyslipidemia, a genetic and multifactorial disorder of lipoprotein metabolism, is characterized by high levels of total cholesterol, low-density lipoprotein cholesterol (LDL-C), non-high-density lipoprotein cholesterol (non–HDL-C), triglyceride, or some combination of these, as well as low levels of high-density lipoprotein (HDL) cholesterol. This study aimed to investigate the prevalence and predictors of dyslipidemia in children and adolescents in the Yazd Greater Area, Yazd, Iran.

Materials and Methods: This cross-sectional study was conducted as a part of the national project implemented in Yazd Greater Area, Yazd, Iran. The sampling was performed using a multi-stage cluster sampling method on three age groups of girls and boys, including 6-9, 10-14, and 15-18 years old. Out of

1,035 children and adolescents who initially participated in this study, only 784 participants remained until the end. Data collection was performed using lifestyle questionnaires including Kiddie-SADS-Present and Lifetime Version software.

Results: The rate of high triglyceride was estimated at 1.4% and 4.2% in 6-9 and 10-18 years old children and adolescents, respectively. Moreover, the prevalence of high cholesterol, LDL, and HDL were obtained at 3.2%, 3.2%, and 25.6%, respectively. The prevalence of dyslipidemia in the total population of children and adolescents was estimated at 64.6% and 57.3% in boys and girls, respectively (P=0.038) in terms of demographic variables. Gender and increase in body mass index (BMI) were significantly associated with dyslipidemia with OR=1.35; 95% CI: 1.01-1.81 and OR=13.781; 95% CI: 3.78- 46.43, respectively. However, after adjustment for other factors, only an increase in BMI was significantly associated with dyslipidemia (OR=16.08; 95% CI: 4.49-57.59).

Discussion and Conclusion: Overweight and obese adolescents had a higher concentration of serum blood triglycerides, compared to their counterparts, which is to some extent the result of industrialization, consumption of fatty foods, and decreased physical activity. Weight control, lifestyle, and diet modification are three ways to reduce lipid disorders in adolescents. Dyslipidemia screening and preventive programs in early life should be a priority in the Iranian health system to attenuate the burden of cardiovascular diseases.

Keywords: Adolescents, Children, Dyslipidemia, Predictors, Prevalence

Deep Learning- based Electrocardiogram in Diagnosis of Myocardial Infarction

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Background: In recent years, the fusion of healthcare and artificial intelligence (AI) has led to groundbreaking advancements in cardiovascular medicine. A notable innovation gaining traction is the use of deep learning (DL) for the diag-

nosis of Myocardial Infarction (MI) through Electrocardiogram (ECG) analysis. This article explores the transformative impact of DL on ECG diagnostics for MI, examining its capabilities, challenges, and potential implications for the future of cardiovascular healthcare.

Methods: We conducted a comprehensive review of existing literature from 2018 to 2023 with a critical perspective, utilizing databases such as Google Scholar, PubMed, Medline, Science Direct, Coherence, Embase, Proquest, Magiran Library, and SID. The chosen keywords for our search included "Machine learning", "Deep learning", "Neural Network", "Artificial Intelligence", "Algorithms", "Electrocardiogram", "Myocardial Infarction", "Diagnosis", "Systematic Review", and "Meta-Analysis". This method allowed us to gather a substantial body of relevant research to analyze and synthesize the findings.

Results: Results from numerous studies and clinical trials consistently highlight the efficacy of deep learning (DL) models, including convolutional neural networks (CNNs), long short-term memory (LSTM) networks, convolutional recurrent neural networks (CRNNs), gated recurrent units (GRUs), residual neural networks (ResNets), autoencoders (AEs) and DenseNet, in enhancing diagnostic accuracy and enabling early detection of myocardial infarction (MI). Moreover, it seems that among these models, CNNs has been more prevalent in usage. As a result, patients benefit from timely interventions and improved outcomes, reducing the morbidity and mortality associated with MI. However, it is essential to acknowledge the challenges that accompany the implementation of DL in clinical settings. The interpretability of complex neural networks, the need for large and diverse datasets, and concerns about model generalization to diverse patient populations are among the notable challenges that researchers and healthcare professionals must address.

Conclusion: Looking ahead, the potential implications of DL in ECG-based MI diagnosis are vast. The future holds the promise of personalized and proactive cardiovascular care, where DL augments the diagnostic capabilities of healthcare professionals, ultimately saving lives and reducing the burden of cardiovascular diseases on a global scale.

Keywords: Deep Learning, Electrocardiogram, Myocardial Infarction

Protective effects of paraoxonase-1 in the decrease of oxidation of the low density lipoprotein in diabetic patients with/without coronary artery disease

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Background: The oxidative modification of low density lipoprotein (LDL) is closely associated with an increased risk for coronary artery disease (CAD) in diabetic patients. The purpose of this study is to investigate the relation between paraoxonase-1 (PON1) activity values with the susceptibility of LDL to oxidative modification and the possibility of CAD in diabetic patients.

Method: This study was designed as a cross-sectional survey of 82 diabetes patients divided into two groups including T2DM alone (as group I) and both T2DM and CAD (as group II) was conducted. Blood samples of all subjects were taken after at least a 12-h fasting. Serums were saved after centrifugation (20 min; 3000 rpm) at −80 °C. Evaluate serum value of Ox-LDL was measured by Enzyme-linked immuneabsorbent (ELISA) methods.

The levels of Serum PON1 activity was measured by colorimetric tests.

Results: Ox-LDL value in groups II was significantly higher compared with group I (with P value = 0.000). PON1 activity value was significantly lower in group II compared with groups I (P value = 0.003). Ox-LDL and PON1 correlated weakly with together (p = 0.094).

Conclusion: Results of this study support the belief that higher Ox-LDL associated with diabetic patients with CAD than these patients without CAD. Furthermore PON1 enzyme with its protective effects on lipid peroxidation as LDL decreases CAD risk in T2DM. In this study, the PON1 activity decreased in diabetic patients with CAD than diabetic patients without CAD with same DM duration.

Keywords: Diabetes Mellitus; Coronary Artery Disease; Oxidized low density lipoprotein; Paraoxonase-1

Investigating Spiritual health and Health promoting behaviors in the Elderly with Hypertension: a descriptive-cross-sectional Study

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Introduction: Hypertension is known as one of the most important challenges of the health system in most age groups, especially the elderly. Spiritual health and health-promoting behaviors in the elderly with chronic diseases can play an important role in improving the quality of life. Therefore, the present study was conducted with the aim of investigating the spiritual health and promoting behaviors in the elderly with hypertension who referred to the Fasa heart clinic in the south of Iran in 1402.

Materials and Methods: The present study is a cross-sectional study. 347 elderly people with hypertension participated in this research selected via convenience sampling. Data collection tools included the demographic information collection form, Spiritual Health Questionnaire, and Walker; Health Promoting Lifestyle Questionnaire. Data were analyzed using SPSS-23 software and descriptive tests, t-test, chi-square, Pearson's correlation coefficient and logistic regression.

Results: The average age of the participants in the study was 54.2 ± 1.89 years. In this study, 33.1% of the participants were women and 66.9% were men. The mean and standard deviation of spiritual health is 83.3 ± 18, which is at the average level. Also, the average and standard deviation of the total score of promoting behaviors was 127.7 ± 17.3, which was at the average level. Pearson's correlation coefficient showed a positive and significant relationship between spiritual health and health-promoting behaviors ($P<0.05$).

Discussion and Conclusion: The results of the study showed that the average score of spiritual health and health promoting behaviors of the elderly with hypertension is at an average level. Therefore, the managers of the health system and the policy makers of the health-treatment system should use the necessary plans to promote spiritual health and health-promoting behaviors in the elderly with hypertension.

Key words: Aging, Spiritual health, Health promoting behaviors, Hypertension

Comparison of using incentive spirometer and Active Cycle Breathing Technique on Anxiety and Blood Oxygen Saturation after Chest Tube Removal in Coronary Artery Bypass Graft Surgery

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Introduction: Coronary artery bypass grafting (CABG) is one of the most common cardiovascular surgeries in adults. Common complications of CABG include anxiety and respiratory disorders. Therefore, evaluation of low-risk methods that might partially improve respiratory function and decrease stress is of utmost importance. The present study aimed to compare the impact of using incentive spirometer and active cycle breathing technique on anxiety and blood oxygen saturation after chest tube removal in CABG surgery.

Material and Methods: A randomized clinical trial was conducted on 51 patients undergoing CABG surgery who divided into two groups, ACBT and spirometry. Patients in the ACBT group performed ACBT in three sessions (10 minutes in each session), twice a day after chest tube removal. Patients in the spirometry group performed spirometry exercises three times, twice a day. Spielberger questionnaire and pulse oximetry device were used to measure anxiety and blood oxygen saturation before and after intervention at five time intervals.

Results: The results showed that there was no significant difference in the mean score of anxiety between groups before intervention but after intervention the anxiety in the ACBT group was significantly lower than spirometry group .Also, SPO2 of patients in the ACBT group was significantly higher than spirometry group after intervention.

Conclusion: According to the results of the present investigation, using ACBT after chest tube removal could be more effective in enhancing spo2 and reducing anxiety in comparison of using incentive spirometer among patients undergoing CABG.

Keywords:CoronaryArteryBypassGraft,Anxiety, incentive Spirometer, BloodOxygen Saturation, Active Cycle Breathing Technique

Effect of Active Cycle Breathing Technique on Vital Signs and Pain in Patients Undergoing Coronary Artery Bypass Grafting Surgery

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Introduction: Coronary artery bypass grafting (CABG) has different complications such as pain and changes in vital signs. Therefore, implementing low-risk methods that might partially relieve pain and keep vital sings in normal range is helpful. The present study aimed to investigate the effect of Active Breathing Cycle technique (ABCT) on vital signs and pain among patients undergone coronary artery bypass graft (CABG) surgery.

Material and Methods: This study was a randomized clinical trial that was conducted on 51 patients undergoing CABG surgery who divided into ACBT and control groups. Patients in the ACBT group performed ACBT in three sessions (10 minutes in each session), twice a day and patients in the control group received routine departmental care VisualAnalogScale and Sphygmomanometer ,thermometer and Pulse oximetry devices were used to measure pain and vital signs of patients before and after intervention at five time intervals.

Results: The results showed that there was no significant difference in the pain score of the two groups after intervention, but there was a significant difference in the intra-group comparisons. The results also showed that there were no significant differences in the different vital signs parameters between two groups after intervention.

Conclusion: Using Active Breathing Cycle Technique did not have significant effect on pain reduction and vital signs of patients undergone CABG.

Keywords: Coronary Artery Bypass Grafting Surgery, Pain, Vital Signs, Active Breathing Cycle technique

Investigating the trend of changes in blood sugar and systolic and diastolic blood pressure according to time in diabetic patients participating in the Sabzevar Persian cohort study

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Introduction: Hypertension is a well-known complication of diabetes mellitus, and diabetes is a well-known complication of hypertension. This study was designed to determine the trend of blood pressure and blood sugar changes in diabetic patients.

Materials and methods: Patients with diabetes who were included in the Sabzevar Cohort Study were the subjects of this investigation. Fasting plasma glucose was measured for all participants using standard methods at the central laboratory three times and with a one-year interval. Systolic and diastolic blood pressure were measured at the time of each examination. Latent growth curve modeling was our method for analysis in R-software version 4.3.2.

Results: By fitting the latent growth curve model in a non-linear way, it was determined that diabetics with an average blood sugar of 168.92 were included in the study. The blood sugar of the patients increased on average with a slope of 1.74 during the study period (p-value = 0.000). The slope variance of the model for the blood sugar variable was 120.045 and was significant (p-value = 0.003). That is, the blood sugar changes of the patients were different in the studied subjects. Also, the covariance of the initial blood sugar and the slope of the adjusted model for blood sugar are negative and significant (P-value = 0.000). This means that for people who had lower blood sugar at the beginning of the study, their blood sugar increased more steeply. The initial average systolic blood pressure of diabetic patients was 119.65. The average systolic blood pressure increases by 1.52 every year, which is statistically significant (p-value = 0.000). In fact, the estimated average value of the slope indicates a significant increase in the trend of changes in systolic blood pressure from one year to the next. Also, the significant variance of the slope for systolic blood pressure shows that diabetic people have individual differences in the increase of blood pressure during the period.

Initial diastolic blood pressure in diabetic patients has an average of 74.36 and an average slope of the line of 0.226. Both values were statistically significant (p-value = 0.000). Thus, the trend of diastolic blood pressure variations rose by 0.226 over the trial, according to the non-linear model.

Conclusion: Considering the increasing trend of blood sugar and systolic and diastolic blood pressure over time in diabetic patients, controlling and evaluating blood sugar and blood pressure in these patients is of particular importance.

Prevalence of Comorbidities and Their Impact on one-year Outcomes in Iranian Patients Hospitalized with ST-segment elevation myocardial infarction

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Introduction: While it is well-known that comorbidities like hypertension are associated with an increased risk for cardiovascular diseases (CVDs), the risk for death and subsequent CV complications has not been adequately addressed. Therefore, this study was aimed to examine the association between comorbidities and one-year outcomes in patients with STEMI.

Methods: This hospital-based study was a part of the Kermanshah STEMI Registry. After applying inclusion criteria, a total of 2,443 patients were assessed. The data were collected using a standardized case report developed by the European Observational Registry Program (EORP). The outcomes including vital status and major adverse cardiovascular events (MACE) were assessed. We assessed the independent predictors of death and MACE using multivariable logistic regression models.

Results: At first-year follow-up, out of the 2443 patients, 268 (11.06) patients died and 403 (19.0) patients experienced the MACE. On multivariate analysis, patients with hypertension (OR 1.69; 95% CI 1.19-2.38) and diabetes (OR 1.61; 95% CI 1.10-2.34) had a higher risk for death. Patients with hyperlipidemia were at the lowest risk of death (OR 0.63; 95% CI 0.41-0.97).

Conclusion: Diabetes mellitus and hypertension increased the risk of death, however, hyperlipidemia decreased the risk of death. The clinical implications

highlight the need for tailoring intervention in all aspects of secondary prevention of CVD especially in patients suffering from comorbidities, managing the common comorbidities, and monitoring diabetics and hypertensive patients.

Keywords: Myocardial infarction, Registry, Iran, Smoking, Comorbidity.

Prevalence, Predictors, Prognosis, and Clinical Outcomes of Persistent Pulmonary Hypertension in Patients Undergoing Aortic or Mitral Valve Surgery at Imam Ali Hospital, Kermanshah, Western Iran

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Background: this study was aimed to determine the prevalence and factors associated with persistent PH following aortic or mitral valve surgery and its relationship with clinical outcomes.

Methods: this retrospective cohort study performed on 204 consecutive patients with sPAP> 40 mmHg who underwent aortic or mitral valve surgery from March 2017 through March 2022 in our center. Clinical data and echocardiographic parameters at baseline, early after surgery, and 6 - 12 months post-operation were collected.

Result: Of the 204 patients, 87 (42.6%) had sPAP>40 mm Hg (residual PH) and 117 (57.4%) had sPAP≤40 mm Hg (improved PH) based on the post-operative TTE. The atrial fibrillation/flutter (OR: 1.94 CI 95% 1.23-2.34; P=0.003), moderate & severe MR (OR: 2.03 CI 95% 1.18-2.96; P=0.006), moderate & severe TR (OR: 3.39 CI 95% 2.66-7.94; P=0.002), moderate & severe AI (OR: 2.10 CI 95% 1.12-3.08; P=0.040), tricuspid annuloplasty (OR:2.12 CI 95% 1.32-3.87; P=0.007), and sPAP (OR: 2.05 CI 95% 1.21-2.99; P=0.032) were independent predictors of persistent PH. The presence of residual PH including mild PH, moderate PH, and severe PH was associated with a 1.92, 2.83, 3.36-fold increased risk of re-hospitalization, a 1.62, 1.75, 2.11-fold increased risk of re-operation, and a 1.66, 1.93, 2.98-fold increased risk of post-operative AF. Average length of stay (LOS) of mild PH (12.32±2.31; adjusted B, 1.53; 95% CI, 1.15-2.04), moderate PH (14.48±3.25; adjusted B, 1.76; 95% CI, 1.35-2.16), and severe PH (16.79±3.87; adjusted B, 2.02; 95% CI, 1.46-2.47) was higher than patients with no PH.

Conclusion: Post-operative persistent PH is common and strongly associated with

re-hospitalization, re-operation, and longer duration of postsurgical hospitalization.
Keyword: Pulmonary hypertension, outcome, mitral valve, aortic valve**,** surgery, prognosis.

Association between cigarette smoking and hypertension: a population-based survey using data from a cohort study in West of Iran

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Background: Hypertension and smoking are important risk factors for many chronic disease and main causes of the disability-adjusted life year (DALY) diseases. But the association between smoking and hypertension remains unclear. This study investigates the association between smoking and hypertension in the largest population-based study in western Iran.
Methods: This population-based study was a part of a recruitment phase of the Ravansar Non-Communicable Disease (RaNCD) cohort study.
Results: For the study's objectives, 6958 participants were assessed. The lifetime prevalence of smoking was 46.6%, and 8.4% were current smokers. The prevalence of hypertension was greater in aged 56-65 years, Illiterate, diabetics, body mass index (BMI) ≥30, and ex-smoker (p-value≤0.05). Both systolic (SBP) and diastolic blood pressure (DBP) were significantly decreased in the current smokers, those who smoked cigarettes for more than 15 years, heavy smokers, and those who start smoking at older ages compared to non-smokers. The population exposed to second hand smoke (SHS) 2-5 hours per day had significantly higher SBP and DBP than nonsmokers. A dose-response model indicated that increasing the duration of smoking and intensity of exposure to SHS increased the SBP in both sexes, but increasing the number of cigarettes smoked per day increased the SBP in women and increasing the age of onset smoking decreased the SBP in women.
Conclusion: Physicians must be conscious of the risk of future hypertension in persistent smokers, passive smokers, and those who have stopped smoking. Stricter disciplinary measures and prevention policies e.g. prohibiting smoking in key public venues are recommended.
Keywords: Hypertension, Smoking, Blood pressure, Current smoker, Prevalence, Iran.

Angina pectoris caused by a myocardial bridging of the ramus intermedius coronary artery

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Background: Myocardial bridging (MB), is a congenital variant of a coronary artery, in which an epicardial coronary artery (most frequently the left anterior descending (LAD) artery) coursing within the myocardium. We reported a patient with an unusual coronary bridge crossing over the ramus. The patient presented with angina pectoris that was relieved with medical therapy.

Case summary: A 39-year-old Iranian man admitted to hospital because of dyspnea and recurrent chest pain for the last 3 months. His exercise tolerance test was positive for ischemic changes. Thus, we decided to apply coronary angiography (CAG). MB was seen in the large segment of the ramus artery. Finally, the patient was remained on a regimen of Metoprolol and Diltiazem. The patient was symptom-free during the follow-up for 2 months.

Discussion: An interesting point of our case is that MB involving the ramus intermedius coronary artery. To the best of our knowledge, this is the third reported case of MB involved the ramus coronary artery.

Keywords: Myocardial Bridging, Angina Pectoris, Coronary Vessels.

Investigating the trend of changes in systolic and diastolic blood pressure in two groups of diabetic patients: people with and without a family history of hypertension

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Introduction : Hypertension is one of the most prevalent disorders among the general public. This study was a trend analysis of changes in systolic and diastolic blood pressure and family history of hypertension among diabetic patients participating in a prospective study.

Material and methods: A questionnaire was used to assess the family history of hypertension in diabetes individuals taking part in the Sabzevar Cohort Study. Three measurements of the diastolic and systolic blood pressure were made, separated by a year. The latent growth curve modeling was approached for analysis by R software version 4.3.2.

Results: Of the participating patients, 30.7% did not have a family history of hypertension, whereas 69.3% did. Individuals with a family history of high blood pressure have an average systolic blood pressure of 119.59, whereas those without a family history of high blood pressure had an average systolic blood pressure of 119.671 at the start of the study. The difference in initial systolic blood pressure was not statistically significant (p-value = 0.317). Compared to the group without a family history of hypertension, the group with a family history of hypertension showed a greater increase in mean systolic blood pressure. The distance between these two groups gradually increased. Individuals with a family history of hypertension had an average initial diastolic blood pressure of 74.795, which was higher than the average starting value of 74.127 for those without a family history of hypertension. This difference was not statistically significant (P-value = 0.574). The difference in the average slope adjusted for diastolic blood pressure for people with a history of hypertension in the family (0.160) and people without a family history of blood pressure in the family (0.305) was significant (P-value = 0.000). The covariance between the initial value and the slope of the adjusted line for diastolic blood pressure was positive in the group with a family history of hypertension. In other words, diabetics who started the research with greater diastolic blood pressure also had higher average growth. In people who did not have a history of hypertension in the family, according to the negative covariance between the initial value of diastolic blood pressure and the slope of the fitted line, people who had higher blood pressure during the study had a lower growth trend in their diastolic blood pressure.

Conclusion: Patients with diabetes should pay close attention for a family history of hypertension. These people should have regular blood pressure monitoring and management.

Clinical Outcomes and Effectiveness of Stent Implantation for Aortic coarctation: A Systematic Review and Meta-analysis

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Objectives: The authors sought to perform a meta-analysis of observational studies and randomized clinical trials (RCTs) exploring the clinical outcomes of stent implantation to treat aortic coarctation (CoA).

Backgrounds: Stenting has become the treatment modality of choice for aortic coarctation; however, its exact efficacy and rate of complications remain controversial.

Methods: All observational studies on stent implantation for treatment of aortic coarctation as well as stenting arms of relevant RCTs were systematically retrieved and a meta-analysis was performed. Outcomes included immediate success rate, pre- and post-stent gradient, survival, minor and major complications, restenosis, post-stent systolic blood pressure and reintervention rate. Analysis was further stratified by type of CoA, types of stents and mean age of patients.

Results: 65 eligible studies comprising 3880 patients were built into the meta-analysis. Stent placement recorded a great success rate of 0.96 (95% CI: 0.95 – 0.97; I^2 = 59.83%) and 0.92 (95% CI: 0.89 – 0.95, I^2 = 77.63%), when success defined as post-treatment gradient ≤20 and 10 mmHg, respectively. Complications rate was quite low, with minor and major complications rates of 0.017 (95% CI: 0.013 – 0.021) and 0.007 (95% CI: 0.005 – 0.009), respectively. Unplanned reintervention was required by a rate of 0.021 (95% CI: 0.015 – 0.026). At a mean follow-up time of 2.9 years, 97% of patients survived and 28% were on antihypertensive medications. Although immediate effectiveness was similar across different age groups, complications occurred more frequently in patients <20 years-old and those >20 years-old maintained lower long-term efficacy.

Conclusion: Stent implantation is a safe and feasible treatment for aortic coarctation.

Abbreviations: Balloon angioplasty (BA), Balloon-expandable (BE), Coarctation of the aorta (CoA), Hypertension (HTN), Randomized clinical trial (RCT), Recoarctation of the aorta (reCoA), Self-expandable (SE), Stent implantation (SI).

In silico gene expression analysis of Tetralogy of Fallot (TOF)

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Introduction: Tetralogy of Fallot (TOF) is the most common type of cyanotic congenital heart sickness(1) defined by Stenson in 1672(2). TOF takes place in approximately 1 in 3600 live births and accounts for 3.5% of babies born with inherited heart sickness(3). This study aims to identify and introduce hub-dysregulated genes involved in TOF.

Materials and Methods: The raw data set, GSE132401, was downloaded from the Gene Expression Omnibus, and then, the dysregulated genes in TOF compared to healthy individuals were identified. Then, the Enrichr database was used to enrich the differentially expressed genes (DEGs). A protein-protein interaction (PPI) network was composed to find target hub genes. Next, Gene ontology and KEGG pathway analysis were achieved to identify the potential function of these genes.

Results: DEGs were obtained by |log2FC|> 0.5 and adjusted p-value <0.05. Ten hub genes were detected from the PPI network in the following order (RPS3, RPL5, RPS2, RPS3A, RPS6, RPS5, RPLP0, RPL18A, RPL7, RPL13A). GO analysis showed that target genes were mainly enriched in Cytoplasmic Translation, Cytosolic Small Ribosomal Subunit, and Semaphorin Receptor Binding. KEGG pathway analysis suggested that target genes were enriched in ribosomes.

Discussion and Conclusion: The results of our study can be helpful for further research attempted in TOF. Likewise, identified genes associated with TOF can help to provide candidate targets for the treatment.

Keywords: Bioinformatics, Heart disease, Gene Expression Omnibus, DEGs.

Epidemiological study of hypertension and some related factors in adults living in Abadan in 2019

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Introduction: Hypertension is the main risk factor for premature death and disability worldwide. The aim of the present study was to determine the prevalence of hypertension and some related factors in adults living in Abadan.

Materials and Methods: This is a cross-sectional analytical study that was conducted on 1767 men and women over the age of 18 who referred to specialized clinics of Taleghani, Shahid Beheshti and khoramshahr hospitals of Abadan in 2019. Data collection was completed by a questionnaire including demographic and clinical characteristics. Collected data was analyzed using descriptive and analytical statistics in SPSS-25.

Results: The prevalence of hypertension was 17.4% (n=307 individuals) and demographic variables of sex, age, weight, height, waist circumference, pelvic circumference, income level, employment, type of occupation, level of education, previous medical history, family history of hypertension, smoking, coffee use were significantly associated with hypertension (P<0.05), but there was no relationship between hypertension with marital status, place of residence, hours of sleep, activity status, tea and alcohol (P>0.05).

Discussion and Conclusion: According to the findings, the role of education in relation to healthy nutrition, increasing physical activity, lifestyle modification, timely diagnosis and treatment of cardiovascular disease and promoting public awareness can play an important role in the prevention and control of hypertension.

Keywords: Hypertension, Prevalence, Adults, Nursing

Examining factors that affect trends in systolic and diastolic blood pressure changes in a longitudinal study of individuals with diabetes

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Introduction: Hypertension among diabetic patients is the leading modifiable risk factor for cardiovascular diseases and death. This study aimed to determine trends in blood pressure and blood sugar changes and related risk factors in diabetic patients in Sabzevar city.

Material and methods: This study was conducted among 589 diabetic patients participating in the Sabzevar cohort study. Information was collected from the cohort center by a questionnaire designed for this purpose. Demographic information included age, gender, height, weight, job, marital status, education, physical activity, cigarette smoking history, history of alcohol consumption, family history for congenital heart disease, diabetes mellitus, and hypertension among their first-degree relatives. Systolic and diastolic blood pressure were measured for all participants three times and with a one-year interval. The analyses were performed based on a length growth curve model by R-software version 4.3.2.

Results: Out of 589 diabetic patients participating in this study (age 57.62 ± 6.8 years), 45% were men and 55% were women. The effect of gender, age, weight, family history of heart diseases, and family history of blood pressure on the systolic and diastolic blood pressure of diabetic patients is positive. (P<0.05) The variables of height, marital status, occupation, history of smoking, family history of diabetes, physical activity, and education have no significant impact on the trend of changes in systolic and diastolic blood pressure in diabetic patients. (P>0.05) In other words, the trend of changes in systolic and diastolic blood pressure is higher for men who have a family history of blood pressure and heart diseases. A history of alcohol consumption caused an increase in systolic blood pressure. However, no significant relationship between alcohol consumption and diastolic blood pressure was observed.

Discussion and conclusion: Regular monitoring of blood pressure is especially important in elderly male patients with high weight, history of alcohol consumption, and family history of heart disease and blood pressure.

Detection of electrocardiogram changes using convolutional neural network based on scalogram

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Introduction: According to all the reports of the World Health Organization, the most important factor threatening humans is heart-related diseases. According to this information, almost half of the deaths in the world are due to heart complications. According to research, 25% of deaths due to heart diseases can be revived. The electrocardiogram signal is the result of the electrical activity of the heart and is the main signal extracted from the heart. Electrocardiogram signal recording is very inexpensive and is very capable in detecting arrhythmias.

Matrials and Method: Diagnosing various problems and changes related to arrhythmias is very important and can be an effective help to doctors. The main part for diagnosing diseases is extracting features. Convolutional neural networks are widely used in disease diagnosis due to their ability in extraction and classification. In this article, using deep features based on convolutional neural network, electrocardiogram signals with changes and without changes have been detected. This work is based on the scalogram of the signal.

Results: Classification results were done with 10-fold cross-validation. The average accuracy results were 99.84% and the average sensitivity was 99.80%.

Discussion and conclusion: According to the obtained results, it can be said that the proposed method has the ability to distinguish signals with changes with acceptable accuracy. And this method can be used for other similar diseases as well.

Keywords: electrocardiogram signal, deep features, electrocardiogram signal changes.

Aneurysm and Intraluminal Thrombosis in the Aorta: A Case Report

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Introduction: Aortic aneurysms, particularly abdominal aortic aneurysms (AAA), pose a significant health risk, with diverse etiological factors including familial predisposition, age, hypertension, gender, and smoking. Atherosclerosis, trauma, infection, and autoimmune diseases further contribute to AAA pathogenesis. This case report delves into a unique instance of AAA, emphasizing its prevalence, risk factors, and associated complexities.

Materials and Methods: A 68-year-old male presented with epigastric abdominal pain, nausea, and anorexia, initially diagnosed as Peptic Ulcer Disease. Subsequent imaging, including a CT scan and CT angiography, revealed a dilated abdominal aorta with calcification extending from the infrarenal region to the bifurcation section. Thrombosis was observed at the aneurysm site and iliac branches, emphasizing the need for a comprehensive diagnostic approach.

Results: Clinical manifestations of AAA can vary, with approximately 25-30% of cases displaying evident signs. Palpation remains a crucial diagnostic tool, but detection may be influenced by aneurysm size, physician skill, and abdominal wall thickness. Radiographic imaging, while helpful, may not always suffice, necessitating advanced techniques. Larger AAAs (>5 cm) may require surgical intervention, considering the risks associated with rupture. This case highlights the complexity of AAA management and the importance of tailored treatment strategies.

Discussion: AAA symptoms, often mimicking musculoskeletal disorders, can range from abdominal and lumbar spine pain to potentially life-threatening complications such as rupture. The study explores various diagnostic modalities, including palpation, radiographic imaging, advanced CT scans, and ultrasound techniques. Surgical interventions, particularly endovascular aneurysm repair (EVAR), present promising outcomes, but careful consideration of associated risks and concomitant diseases is paramount.

Conclusion: This case report underscores the challenges in managing AAA, emphasizing the importance of a thorough diagnostic approach, including CT scans

and ultrasound. Surgical interventions, such as EVAR, hold promise but require nuanced consideration of patient-specific factors for optimal outcomes. The study contributes valuable insights into the complexities of AAA management in the context of a unique clinical presentation.

Keywords: abdominal aortic aneurysm; common iliac arteries; thrombosis, Case report; Multidetector computed tomography

Comparison of the effects of Metformin and Ganoderma lucidum derivatives on reducing blood sugar in patients with type 2 diabetes

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Background and Objectives: Today, due to the machine lifestyle and type of nutrition, various diseases have plagued human societies. One of them that is directly related to nutrition is diabetes. Between different types, the second type of which accounts for a high percentage of sufferers. Although type 2 diabetes can be well controlled with drug, paying attention to physical activity and following a correct diet should be taken into consideration by patients. Over the years, various medicines have been discovered and offered to reduce the blood sugar of diabetic patients, but in recent years, one of the medicinal plants that has been able to control fasting blood sugar has been introduced to the world from traditional Chinese medicine. This plant belongs to the category of mushrooms and is known by the names Reishi and Lingzhi (with scientific name: Ganoderma lucidum). This study examines the effects of the encapsulated powder and aqueous extract of this medicinal mushroom (AshianGanoTab Biopharmaceutical Company products) on the three factors of blood sugar measurement in type 2 diabetic patients.

Keywords: Diabetes, Metformin, blood sugar, Ganoderma

Evaluation of 5- and 10-year predictability of Three Combinational Lipid Indices for Incidence of Cardiovascular Disease: Insights from the Kerman Coronary Artery Disease Risk Factors Study (KERCADRS)

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Introduction: Limited data exist on the association between cardiovascular disease (CVD) and three combined lipid indices of lipid accumulation product (LAP), triglyceride-glucose index (TyG), and visceral adiposity index (VAI). This study aimed to assess the correlation of these innovative indices with the 5- and 10-year incidence of CVD.

Material and methods: In a follow up of 1888 and 1450 healthy adults, aged 15 to 75 years [participated in 2012 (phase one) of KERCADR study], for five and ten years, respectively, baseline LAP ([(WC-65)×TG] for men or [(WC-58)×TG] for women), TyG (ln((TG×FBG)/2)), and VAI ([(WC/(39.68+(1.88×BMI)))×(TG/1.03)×(1.31/HDL)]for men or [(WC/(36.58+(1.89×BMI)))×(TG/0.81)×(1.52/HDL)]for women) were computed, and logistic regression models were employed to evaluate their relationship with CVD incidence. furthermore, the predictive efficacy of these indices was assessed using the area under the ROC curve (AUC) in comparison to the predictive efficacy of traditional single lipid indices.

Results: Over the 5- and 10-year follow-ups, 399 and 476 cases of CVD (21.1% and 32.8% respectively) were recorded. Adjusted odds ratios (AOR, 95% CI) for 5-year CVD risk prediction were LAP (2.24 [1.44, 3.50]), VAI (1.58 [1.08, 2.33]), and TyG (1.57 [1.02, 2.42]). For the 10-year CVD risk, AOR was LAP (1.61 [1.04, 2.49]), TyG (1.57 [1.02, 2.41]), and VAI (1.41 [0.96, 2.09]). LAP consistently demonstrated superior performance with the highest AUCs in both time and gender (0.644 and 0.651), surpassing the other indices and traditional single factors (e.g., BMI, TC, LDL).

Conclusion: overall, LAP, TyG, and VAI proved to be more effective predictors of CVD risk compared to traditional single risk factors. Among these, LAP exhibited the strongest predictive power for CVD incidence.

Keywords: lipid accumulation product, triglyceride-glucose index, visceral adiposity index, cardiovascular disease, incidence.

The Effectiveness of Rehabilitation-Education Program on Risk Factors in Patients with Coronary Artery Disease

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Introduction: Cardiac rehabilitation programs refer to interventions aimed at stopping the recurrence of coronary artery disease in patients. The purpose of this study was to determine the effect of rehabilitation education program on risk factors in patients with coronary artery disease.

Methods: In this clinical trial study 70 CAD patients who were admitted to coronary care units of Ali-Ebne Abitalib Hospital, Zahedan were selected using convenience sampling according to the inclusion criteria. Then, they were randomly allocated to the intervention and control groups by using coin flipping. The intervention consisted of a twelve-week training and exercise program. The exercise program included walking sessions at home at least three times a week. Data were collected through using a demographic questionnaire, measuring blood pressure, fasting blood sugar, low-density lipoprotein and high- density lipoprotein. Data were analyzed in SPSS version 21 using independent t-test, paired t-test, and Chi-square test.

 Results: The results showed the significant difference between the two groups after the intervention in terms of risk factors. High- density lipoprotein increased and other risk factors such as systolic and diastolic blood pressure, fasting blood sugar and low-density lipoprotein decreased after the intervention.

Conclusions: The cardiac rehabilitation program reduced the systolic and diastolic blood pressure, fasting blood glucose and low density lipoprotein in the in-

tervention group. On the other hand, it increased high density lipoprotein. Therefore, the adjustment of risk factors is evident in patients who received a cardiac rehabilitation program. It is recommended that healthcare providers deploy such interventions and rehabilitation programs which adjust the risk factors, alleviate disease complications, and reduce individual and social costs associated with cardiovascular diseases.

Keywords: Cardiac Rehabilitation Program, Coronary Artery Disease, Risk Factors

Effect of education based on self-efficacy on treatment adherence in patients with heart failure in educational hospitals in Zahedan

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Background & Objectives: Promotion of treatment adherence is one of the major aspects of disease management in heart failure. Implementation of educational program is essential in order to adherence promotion, prevetion of treatment costs and decreasing the hospitalization in these patients. The current study was done aimed to determine the effect of self-efficacy-based training on treatment adherence in heart failure patients in Khatam-Al-Anbia and Ali-Ibne-Abitaleb hospitals in Zahedan.

Materials & Methods: In this semi-experimental study, 70 patients were selected conveniently and based on inclusion criteria in CCU and post-CCU wards in Khatam-Al-Anbia and Ali-Ibne-Abitaleb hospitals in Zahedan in 2021 and then were randomly allocated into two groups through colored cards. At first demographic and treatment adherence questionnaire was completed in both groups. In intervention group educational program based on self-efficacy was done in sequential 4 days and each time for 45 minutes. During 3 monthe after the intervention, 4 calls were done in each month with intervention group in order to reminding the educational topic. After 3 months post-test was done in both groups. Control group received the routin education. Data analysis was done through Independent T-Test, paired T-Test and Chi-square test in SPSS26.

Results: The results of Independent T-Test showed that there was no significant difference between the intervention and control groups in terms of mean score of

treatrment adherence before the intervention (p=0.284). But after the intervention, the mean score of treatment adherence was significant different between the two groups (p=0.001).

Conclusion: The application of the self-efficacy-based training can increase the treatment adherence in heart failure patients. Thus, designing and implementing of these interventions with low cost can lead to adherence promotion, adjusting risk factors and better health status through maximus collaboration of patinets.

Key words: self-efficacy-based training, heart failure, adherence to treatment

The effect of cardiac rehabilitation program on functional capacity and waist to hip ratio in patients with coronary artery disease: A clinical trial

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Aims: This study aimed to determine the impact of cardiac rehabilitation programs on functional capacity and waist to hip ratio in coronary artery disease (CAD) patients.

Methods: In this clinical trial study 70 CAD patients were selected using purposive sampling and based on inclusion criteria. The intervention consisted of a 12-week training and exercise program included walking sessions at home at least three times a week. The 6-min walk test (6MWT) was conducted to measure the functional capacity and waist to hip ratio (WHR), as the anthropometric index, in both groups before and after the intervention. Data were analyzed in SPSS 21 using independent t test, paired t test, and Chi-square test.

Results: The mean distance traveled in the 6MWT was 297.30 m and 283.55 in intervention and control groups respectively before the intervention. After the intervention, this distance was 509.03 and 389.91 m in intervention and control groups respectively, suggesting a significant difference between the two groups (p < .001). The mean WHR was 0.8648 and 0.8403 in intervention and in control respectively before the intervention. After the intervention, this value became 0.7985 and 0.8555 in intervention and control groups respectively and showed

significant difference (p <.001).

Conclusions: The cardiac rehabilitation program improved the ability of patients in the 6MWT and enhanced their functional capacity and reduced the mean WHR, which in turn evinces the improvement of the anthropometric index and mitigation of risk factors in CAD patients. So, healthcare providers can deploy such rehabilitation programs to empower patients, alleviate disease complications, and reduce individual and social costs of cardiovascular diseases.

Keywords: cardiac rehabilitation program; coronary artery disease; functional capacity

The Effect of Cognitive-Behavioral Training Versus Conventional Training on Self-care and Depression Severity in Heart Failure Patients with Depression: A Randomized Clinical Trial

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Introduction: Psychological factors including depression and anxiety are the most critical risk factors in the treatment and prognosis of heart failure which should be addressed in treatment and care programs. The purpose of this study was to examine the effect of cognitive-behavioral training (CBT) on depression severity and self-care ability of patients with heart failure.

Methods: This study was a randomized clinical trial that carried out on 80 patients with heart failure who had been hospitalized in 2018. The participants were divided into the CBT group (n= 40) and the conventional training (CT) group (n= 40), randomly. Data were collected using Beck Depression Inventory (BDI) and the Self-Care of Heart Failure Index (SCHFI) version 6.2 before and 8 weeks after the educational interventions. Data were analyzed in SPSS 21 using paired t-test, independent t-test, chi-square test, and covariance analysis

Results: The mean score of self-care in the CBT group turned out to be signifi-

cantly higher than the CT group after receiving the intervention. Also, the mean depression score of the CBT group 26.95 (5.53) after intervention was significantly lower than the CT group 36.04 (8.45).

Conclusion: Cognitive-behavioral intervention, compared with conventional training, had a greater positive impact on improving self-care and alleviating the severity of depression symptoms. Therefore, it is recommended that the principles of cognitive-behavioral therapy be integrated into routine educational programs.

Keywords: Cognitive behavioral therapy, Heart failure, Depression, Selfcare, Education

The Care Needs of Coronary Artery Bypass Graft (CABG) Patients After Hospital Discharge

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INTRODUCTION: Given that the 30-day morbidity and death rate after CABG surgery can reach 14.0% and 2.0%, respectively, it is frequently regarded as a high-risk procedure. A lot of the patients who are released following CABG surgery often need to receive educated about self-care and issues following surgery. The current study aimed to determine the care needs of CABG Patients After Hospital Discharge.

MATERIALS AND METHODS: This descriptive study was conducted in Tehran in 2021. The research samples consisted of 250 patients who underwent open heart surgery in the educational centers of Iran University of Medical Sciences. The patients were selected through the Convenience sampling. Data was collected using patients' care needs questionnaire, and SPSS version 18 software was used for analysis.

RESULTS: Women made up 63% of the participants in the study. The patients were 56 years old on average. Following CABG, patients' health problems at home included sleep disturbances, discomfort, wound care from surgery, respira-

tory problems, gastrointestinal problems, activity-related challenges, and personal hygiene. Patients dealing with sleep issues, chest pain, coughing, constipation, and difficulty maintaining their sleeping position required the most attention.

Discussion and Conclusion: Taking into account that patients require precise and high-quality post-operative care in order to recover more quickly while preventing problems. Before discharging the patient, the care team which encompasses the surgeon, nurse, physiotherapist, dietitian, and psychologist should provide them with the essential education they require to achieve the desired outcome.

Key Words: Coronary Artery Bypass Grafting, Needs Assessment, Patient Discharges, Care

Designing and Testing an Attitudinal Model Based on the Self-Care Trait of Patients with Cardiovascular Disorders (CVD). Application of Structural Equation Modeling (SEM)

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Background and Objectives: Attitudinal factors based on traits are one of the most important issues affecting the self-care of patients with cardiovascular disorders. The purpose of this study was to design and test an attitudinal model based on the characteristics of self-care in patients with cardiovascular disorders.

Methods: The present study was a descriptive-analytical cross-sectional study. The research population included 405 patients with cardiovascular disorders who were selected non-randomly. The data was collected using a researcher-made questionnaire and analyzed with SPSS.V23 software. To analyze the data, descriptive tests, Pearson correlation ,and multiple linear regressions were used, as well as structural equation modeling in Amos.V24 software.

Results: The average age of the participants was 59.96 ± 14.25 years. Statistically, the meaning of life construct was the predictor of the sense of coherence construct ($p<0.001$, $\beta=0.26$). Also, the structure of understanding the disease was a predictor of self-care ($p<0.001$, $\beta=0.21$). The degree of freedom ($\chi2/df$) and root mean square

error of approximation (RMSEA) were less than 5 and less than 0.8, respectively.
Conclusion: The most important dimensions included in the explanation of self-care include a positive perception of illness, a focus on health control, and the meaning of life. According to these results, the health control center and the understanding of the disease on the one hand, and the effect of the meaning of life on the other hand should be further investigated in the self-care of cardiovascular patients.
Keywords: Cardiovascular Abnormality, self-care, sense of coherence, attitudinal model, structural equation modeling

Using a model to design, implement, and evaluate a educational-therapeutic method of couple training program based on cognitive-behavioral approach for improving marital adjustment among couples following myocardial infarction: a mixed methods study

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Introduction: Marital adjustment changes after serious diseases such as myocardial infarction. Psychological therapies and training are required to aid couples in their marital adjustment. A training program is essential to enhance couples' marital adjustment. Therefore, the present study aimed to design, implement, and evaluate a couple training program based on the cognitive-behavioral approach to improve marital adjustment of couples' following myocardial infarction.
Materials and Methods: This exploratory mixed methods study used six steps proposed in the Talbot and Verrinder model to design a training program. In the frst step, a Grounded theory method using was conducted and 30 participants were interviewed using purpose and theoretical sampling. After analyzing the data and discovering the relevant themes in the second and third steps, literature review , evidence based performance and the two expert panel were used for initiation and finalization of the program. The fourth, fifth, and sixth steps were completed by implementing, monitoring, and evaluating the educational-therapeutic program (eleven two-hour sessions three times a week) among 40 patients with myocardial infarction and their spouses using a quasi-experimental design . Finally, efectiveness of program was evaluated through the educational-therapeutic method before and 1 month after

the program. Participants in both groups were assessed using the marital adjustment scale developed by Spanier before and after the intervention. Data were analyzed via SPSS-22, independent t-test, paired t-test and analysis of covariance.

Results: A systematic model was used to identify key elements of a educational-therapeutic method, including main topics, educational objectives and contents, assignments and activities for couples' following myocardial infarction ,teaching and evaluation methods. The objectives and educational contents were implemented in eleven sessions to produce measurable results. The quantitative step showed that couple training program based on the cognitive-behavioral approach in the posttest, the intervention group's mean scores of satisfaction, cohesion, consensus, and affection expression as well as their overall DAS score were higher than that of the control group. ANCOVA test showed that these differences were statistically significant (p≤0.05).

Conclusion: educational-therapeutic method of couple training program based on cognitive-behavioral approach proved successful in promoting marital adjustment and its subscales in couples following myocardial infarction. As a result, it can be employed in cardiac rehabilitation regimens for patients.

Keywords: Marital adjustment, myocardial infarction, couples, cognitive-behavioral couple therapy

Investigating the effect of cognitive behavioral training on marital adjustment of spouses of heart failure patients

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Background and aim: Heart failure is a chronic disorder that causes disruption in the personal, marital and social relationships of couples. Therefore, the present study was conducted with the aim of determining the effect of cognitive behavioral training on the marital adjustment of spouses of patients with heart failure.

methods: The current research is a semi-experimental study that was conducted on 40 spouses of heart failure patients in hospitals affiliated to Zahedan University of Medical Sciences. The samples were selected as available and randomly divided into intervention and control groups. The intervention group participated

in an educational program based on the cognitive-behavioral approach that was held during six two-hour sessions three times a week. The participants of both groups were evaluated with Spiner's marital adjustment scale before and after the intervention. The data were analyzed using independent t-test, paired t-test and analysis of covariance with the help of spss-22 software.

Results: The results of the present study showed that the average and standard deviation of marital compatibility scores of spouses in all dimensions in the post-test in the intervention group is higher than in the control group. ANCOVA test showed that these differences are statistically significant ($p \leq 0.05$).

Conclusion: Considering the positive effect of the educational program based on the cognitive-behavioral approach in increasing the marital adjustment of the spouses of heart failure patients, it is recommended to use this program in the rehabilitation programs of heart patients.

 Key words: marital adjustment, heart failure, cognitive-behavioral therapy

Perillyl alcohol, quercetin and berberine combination therapy ameliorate experimental pulmonary arterial hypertension: Effects on heart miR-204 expression

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Introduction: Pulmonary artery hypertension (PAH) is a devastating syndrome with a poor prognosis. miR-204 has significant role in pathophysiology of PAH. Our previous studies showed that perillyl alcohol (P), berberine (B) and quercetin (Q) improve pulmonary hypertension. In this study, we aimed to investigate the effects of double and triple combinations of these herbal derivatives in PAH rats.

Materials and Methods: Forty-nine Wistar rats (male) were divided into seven groups (n=7): 1) control, 2) monocrotaline (MCT), 3) MCT+veh., 4) MCT+BP, 5) MCT+PQ, 6) MCT+BQ, 7) MCT+BPQ. A single dose of MCT (60 mg/kg) was injected subcutaneously. After three weeks, either vehicle (5% ethanol) or one of the above combinations (dose 20 mg/kg for B and doses 20 and 10 mg/ kg for P and Q) were administered for three weeks. Right ventricular (RV) pressure, contractility indices, lung pathology and heart miR-204 expression were measured through

right ventricle (RV) cannulation, H&E staining and real-time qPCR respectively.

Results: All treatments significantly reduced RV systolic pressure, hypertrophy and arteriole wall thickness compared to the vehicle group. Furthermore, MCT reduced miR-204 expression in the heart of rats that recovered after treatment with BP, QP, BQ and BPQ significantly.

Discussion and Conclusion: The results showed that combination therapy with these compounds had additive effects against PAH and its consequence right ventricular hypertrophy. Therefore, these compounds may be introduced as therapeutic goals towards complementary studies for the production of medicines for the treatment of heart and lung complications of PAH in the clinic.

Keywords: Pulmonary artery hypertension, Perillyl alcohol, Berberine, Quercetin, combination therapy, miR-204

Assessing educational needs of nurses regarding the care after open heart surgery in ICU wards of Dr. Chamran Hospital in 2023

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Introduction: Providing desirable care in cardiac care unit because of high mortality, patients' inability and re-hospitalization and spending expenditures, has high importance.

Regardless of method used for performed surgery, successful results depend on optimized care after surgery in ICU. Therefore, medical team failure in healing patients with reversible potential consequences, is one of the important factors of post-surgery mortality.

So, current study has been done by purpose of considering training needs of nurses working in ICU wards of Shahid Chamran Heart Hospital in 2023.

Method: In this descriptive cross-sectional study, statistical population was two groups of nurses in ICU wards of Chamran Hospital with 30 individuals sample volume that were determined by census method and based on entrance criterion and 10 individual expert panel(nursing professors, educational supervisors, heart surgeons, anesthesiologists). Tools for collecting data were Demographic questionnaire and researcher-made questionnaire that considered nursing care

after open heart surgery in 23 questions and scoring was based on 5-point Likert Scale. Data was analyzed in SPSS v.24 software.

Findings: Based on score averag (score out of 5) , reported first six training priorities in domains of hemodynamic monitoring and related care(4, pharmaco-therapy and calculations and related cares(3.78,ABG analysis(3.72, diagnosis of arrhythmias(3.71, investigation and control of complications after open heart surgery(3.66, controlling bleeding and drainages monitoring(3.45 as training priorities respectively.

Conclusion: A four-year university education prepares a nurse for general care, and to work in specialized departments, it is necessary to determine the education-al needs of nurses and to determine in-job-training and retraining based on them.

Key words: open heart surgery – training – nurses

The relationship between perceived social support and demographic characteristics among patients with acute coronary syndrome: a descriptive-correlational study

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Introduction: Acute coronary syndrome (ACS) creates a unique experience for patients. An improved level of perceived social support (PSS) plays a role in the reduction of patients' psychophysical illnesses. Adaptation and coping with stressful events in life reduce the negative psychological response to the disease. It can also positively influence quality of life, efficiency, and creativity. This study aimed to determine the relationship between PSS and demographic characteris-tics of ACS patients.

Materials and Methods: This descriptive- correlational study was conducted on 170 ACS patients hospitalized in medical-teaching centers affiliated with Shi-raz University of Medical Sciences in 2021. The participants were sampled with the convenience method. The employed scales were demographic information and PSS questionnaires. Data were analyzed using SPSS version 25 software.

Results: The participants' age averaged 51.7 ± 7.5 years, and the majority were

male (77.1%) and married (90.6%). The average score of PSS was 135.60 ± 17.48. Mann-Whitney, Kruskal-Wallis, and Spearman's correlation coefficient tests indicated no significant relationships between demographic variables and the PSS scores.

Discussion and Conclusion: The results demonstrated a high level of PSS in ACS patients. Along with conventional treatments, it is recommended to provide strong social support networks for ACS patients.

Key words: Coronary Artery Disease, Social Support, patient

Creatinine clearance is key to solving the enigma of sex difference in in-hospital mortality after STEMI: Propensity score matching and mediation analysis

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Introduction: The precise impact of sex difference on in-hospital mortality in ST-elevation myocardial infarction (STEMI) patients is unclear, and the studies are no longer consistent. Therefore, we sought to evaluate the impact of sex differences in a cohort of STEMI patients.

Materials and Methods: We analyzed the data of 2647 STEMI patients enrolled in the Kermanshah STEMI Cohort from July 2017 to May 2020. To accurately clarify the relationship between sex and hospital mortality, propensity score matching (PSM) and causal mediation analysis were applied to the selected confounder and identified intermediate variables, respectively.

Results: Before matching, the two groups differed on almost every baseline variable and in-hospital death. After matching with 30 selected variables, 574 male and female matched pairs were significantly different only for five baseline variables and women were no longer at greater risk of in-hospital mortality (10.63% vs. 9.76%, p = 0.626). Among the suspected mediating variables, creatinine clearance (CLCR) alone accounts for 74% (0.665/0.895) of the total effect equal to 0.895(95% CI: 0.464–1.332). In this milieu, the relationship between sex and in-hospital death was no longer significant and reversed -0.233(95% CI: -0.623–0.068), which shows the full mediating role of CLCR.

Discussion and Conclusion: Our research could help address sex disparities in STEMI mortality and provide a consequence. Moreover, CLCR alone can fully explain this relationship, which can highlight the importance of CLCR in predicting the short-term outcomes of STEMI patients and provide a useful indicator for clinicians.

Keywords: STEMI, PSM, mediation analysis, CLCR

The Effectiveness of 8 Weeks of Cyclic Yoga Exercise on Some Cardiovascular Risk Factors in Type 2 Diabetic Patients with Non-Alcoholic Fatty Liver Disease

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Introduction: One of the main causes of type 2 diabetes is obesity and overweight. Obesity and inactivity are associated with increased rates of disability and mortality due to cardiovascular risk factors. There is a strong connection between diabetes and cardiovascular diseases. One of the cheap and low-risk methods of dealing with these two diseases is exercise. One of the new sports is cyclic yoga. Limited research has been done in this field. Therefore, this research was conducted in order to investigate the effect of cyclical yoga practice on some cardiovascular risk factors.

Materials and methods: 40 type 2 diabetic women with non-alcoholic fatty liver disease were randomly selected and divided into two groups: control group and cyclic yoga practice group. The training group performed 45 to 90 minutes of cyclical yoga exercises for 8 weeks, three days a week. Some cardiovascular risk factors including total cholesterol, LDL cholesterol, HDL cholesterol, triglyceride, body mass index, and fasting blood glucose were measured.

Results: There was no significant difference between the two groups in the pre-test ($p>0.05$). Statistical analysis shows that there is a significant difference in all variables between the two groups in the post-test ($p\leq0.05$). Paired t-test showed

that all factors had a significant change in the interval training group (p≤0.05), But in the control group, the increase in diastolic blood pressure and total cholesterol was not significant (p<0.05).

Discussion and Conclusion: Research findings show that interval training can improve cardiovascular risk factors. But cardiovascular risk factors worsened in the control group without regular exercise, which indicates the importance of regular exercise for type 2 diabetic patients with non-alcoholic fatty liver disease.

Keywords: Anxiety, Fatty Liver, Diabetes Mellitus, Depression.

The Effect 8 Weeks of HIIT Exercise on Blood Pressure and Resting Heart Rate in Type 2 Diabetic women with NAFLD

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Introduction: Positive association between resting heart rate (RHR) and risk of type 2 diabetes (T2D) has been documented in several studies. Type 2 diabetes mellitus (T2D) has been associated with an increased risk of hypertension. The coexistence of T2D and hypertension confers a dramatically increased risk (2- to 4-fold) of cardiovascular disease, end-stage kidney disease, and death, compared with the non-diabetic adults. Therefore, the aim of this study is to investigate the effect of high-intensity interval aerobic exercise on blood pressure and resting heart rate in type 2 diabetic patients with non-alcoholic fatty liver disease.

Material and methods: In this research, 24 type 2 diabetic women with non-alcoholic fatty liver disease were selected as available samples and then randomly divided into two groups of interval aerobic exercise and control. The subjects performed interval training on a cycle for 8 weeks, three days a week. Before and after the intervention, the subjects' systolic and diastolic blood pressures were measured.

Results: The results showed that there was no significant difference between the variables in the pre-test. Analysis of variance test showed that systolic and diastolic blood pressure and RHR were significant between the two groups (p≤ 0/05). The decrease in systolic and diastolic blood pressure and resting heart rate was

significant in the HIIT group (p≤ 0/05). But there was no significant increase in RHR and blood pressure in the control group (p≥ 0/05).

Discussion and Conclusion: The findings of the present study showed that interval aerobic exercise improves systolic and diastolic blood pressure and resting heart rate in type 2 diabetes patients with non-alcoholic fatty liver disease. Therefore, it is recommended that these people include interval training suitable for their physical fitness level in their daily schedule.

Keywords: RHR, Systolic, Aerobic, Mellitus Diabetes.

Daidzein protects against heart injury in rat model of chronic kidney disease: Role of angiotensin receptors blockers

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Introduction: Chronic kidney disease (CKD) causes complications and comorbidities in the heart. The renin-angiotensin system (RAS) plays a major role in these co-morbidities. This study aimed to determine the effects of the phytoestrogen daidzein and its interaction with AT1 and Mas receptor blockers on the histopathological damage, oxidative stress, and inflammation in the heart of ovariectomized (OVX) rats with UUO-induced CKD.

Materials and Methods: Eighty-four OVX rats were randomly assigned to four main groups (n = 21): sham, UUO, UUO+17β-Estradiol (E2), and UUO+-daidzein. The rats in each main group were assigned to the three subgroups of saline, A779 (MasR antagonist), and losartan (AT1R antagonist). The heart tissues were removed, weighted, and placed in formalin or frozen at -80 °C for histopathological and biochemical measurements, respectively.

Results: In the OVX rats with obstructed kidney, UUO led to increase in weight and remodeling and dysfunction of the heart tissue. Moreover, UUO increased the oxidative stress and inflammation in this organ. Daidzein administration alone and in combination with A779 or losartan attenuated the heart injury in OVX

CKD rats.

Discussion and Conclusion: The findings suggest that daidzein exerts anti-oxidant and anti-inflammatory effects and may be suggested for the treatment of cardiovascular complications in postmenopausal women with CKD.

Keywords: Chronic kidney disease, Ovariectomized rats, Angiotensin receptor, Heart injury, Oxidative stress, Inflammation

Medication-Related Burden among Patients with Heart Failure

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Introduction: The evaluation of medication-related burden from the perspective of patients with heart failure (HF) is crucial to identify inhibitors that may prevent the achievement of desired clinical outcomes. Medication-related burden in patients with HF leads to numerous negative effects in their lives. The current study aimed to explore medication-related burden experience in HF patients.

Materials and Methods: This descriptive qualitative study was conducted in HF clinics affiliated to Tehran University of Medical Sciences. The participants were selected purposefully. Characteristics of participants with HF included the diagnosis of HF class I to III approved by HF fellowship, age over 18 years, and history of HF for at least 6 months. Semi-structured interviews were used to collect data. Data collection continued until data saturation. Data management was done in MAXQDA2020 software and analysis was done using the conventional content analysis approach by Graneheim & Lundman (2003) method. The trust-

worthiness of data was evaluated using Lincoln and Guba criteria.

Results: In total, 15 patients with HF were interviewed. The interviews lasted between 20 and 45 minutes. The mean (SD) age of the participants was 56.60 ± 9.62 years. Most of the participants had HF class III (73.33 %). "The scarcity of medicines", "Poor financial ability" and "The expensiveness of the drug" were identified as the three factors related to medication burden among patients with HF.

Discussion and Conclusion: Medication-related burden caused by the costs associated with taking medications, can lead to medication non-adherence, poor health outcomes, and impact on daily life. According to the interviews, the participants stated that some HF prescriptions are scarce and expensive. On the other hand, most of the participants stated that they are unable to purchase some of their own medicines due to their poor financial ability. The financial burden of medication can negatively affect the well-being of patients with HF. So that, some of the participants stated in their experiences that they used their prescriptions less than the prescribed amount or stopped taking them.

Keywords: Medication-related burden, Medication adherence, Heart failure

Investigating the connection between myocardial infarction and related risk factors among diabetic patients in a prospective cohort study

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Introduction: Diabetes is the seventh leading cause of death in the United States and also one of the top ten leading causes of death in Iran. Myocardial infarction is the main cause of mortality among individuals with diabetes mellitus. The aim of this study was to investigate some underlying factors contributing to myocardial infarction in diabetic patients participating in the Sabzevar cohort study.

Materials and methods: This study investigated 589 people with diabetes who were included in the Sabzevar Cohort Study. Information was collected from the cohort center using a standard questionnaire designed for this purpose. The dependent variable was myocardial infarction, whereas the independent factors included blood pressure, age, gender, BMI, marital status, ethnicity, occupation, history of cigarette and alcohol use, family history of diabetes, and family history of hypertension. The data was analyzed using an independent t-test, a Fisher test,

a Chi-2 squared test, and logistic regression with SPSS software version 24.

Results: Sixty-seven percent of the 132 diabetic patients with myocardial infarction (age 57.62±6.8) who were enrolled in our study had high blood pressure, while 33 percent did not. Of the 457 diabetic individuals (age 53.64±7.7) who did not suffer a myocardial infarction, 41% had high blood pressure, and 59% did not. Our findings revealed a statistically significant relationship between blood pressure and myocardial infarction (P-value = 0.000, B = 0.934), with diabetic individuals with high blood pressure having a 2.5 times higher risk of developing myocardial infarction than diabetic patients without high blood pressure. A significant relationship was found between age and the prevalence of myocardial infarction (p-value = 0.001; B =0.055). There was not a significant relationship found between the other variables investigated in the study and myocardial infarction.

Discussion and conclusion: Paying attention to age and controlling blood pressure is of utmost importance to diabetic patients. Regular assessment and control of blood pressure could reduce the risk of myocardial infarction in diabetic patients.

Keywords: Myocardial infarction, Diabetes, Blood pressure.

Left Ventricular Thrombus Formation in a COVID-19 Patient with a Complex Course of Pericarditis and Myocardial Infarction.

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Abstract: Coronavirus Disease 2019 (COVID-19) has grown significantly in scale as a result of the development of the novel Zoonotic Severe Acute Respiratory Syndrome Coronavirus-2. Despite the fact that respiratory symptoms predominate, cardiovascular problems have also been reported. Pericarditis, inflammation of the pericardium, is the most prevalent pericardial disease and a prominent cause of acute chest discomfort in young people which is most commonly caused by viral infections. Individuals with COVID-19 may be hypercoagulable, which could accelerate the onset of left ven-

tricular thrombus (LVT). A 38-year-old COVID-19 patient with ST elevation MI and LV thrombus and the signs and symptoms of pericarditis with no past medical history of any heart conditions was represented. The case demonstrated that thrombotic complications such as coronary thrombosis and LV clot could occur even in COVID-19 patients with non-specific symptoms and gradually progressed and led to clot formation and coronary involvement. This indicates the mysterious face of COVID-19. This complex process highlights the Manuscript File Click here to view linked References necessity of screening patients for COVID-19 disease even with non-specific cardiac symptoms.

KEYWORDS: Pericarditis, Myocardial Infarction, Left Ventricular Thrombus Formation, COVID-19

Awareness of hypertension among 10663 adults in Kherameh: A population-based study

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Introduction: Hypertension (HTN) is known to be a modifiable risk factor for Cardiovascular Disease (CVDs), stroke, and kidney disease. The present study aimed to determine awareness of HTN and the related factors in Kherameh, Iran.

Materials and Methods: This cross-sectional study was performed on 10663 individuals aged 40-70 years using Kherameh cohort data. HTN was defined as either Systolic/Diastolic Blood Pressure (SBP/DBP) $\geq 140/90$ mmHg or taking medications and awareness to have HTN was regarded as the self-report of a previous diagnosis by the health staff. Logistic regression was used to examine the relationship between awareness to have HTN and its related factors.

Results: Prevalence and awareness proportion of HTN in patients were 27.7% (95% CI: 26.86-28.54) and 80.3% (95% CI: 79.56-81.04), respectively. Age, gender, body mass index, CVD, occupation, diabetes, chronic diseases, history of CVD in the first- and second-degree relatives, and history of chronic diseases in the second-degree relatives were associated with all dependent variables in the regression model.

Discussion and Conclusion: The results of this study showed that the awareness of HTN in Kherameh population is relatively good. To increase this percentage, planning and educational interventions are needed.
Keywords: Awareness, Control, Hypertension

Cardiovascular effects of the Naja naja oxiana venom in anesthesized rats

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Introduction: Cobra bites are common in the northwest province of Iran, located in the Middle East. Envenomation by Naja naja oxiana (Caspian Sea) is associated with neurological manifestations such as ptosis and drooling. This preliminary study aims to evaluate the hemodynamic abnormalities induced by intravascular injection of the venom in rats and investigate the neutralizing effects of different premedications.
Materials and Methods: Twenty male Wistar rats weighing between 200-250 grams were divided into four groups (n=6). The first group served as the control, while the other groups were envenomed with crude venom (300μg/kg, 600 μg/kg, and 1500 μg/kg) dissolved in normal saline (200μl) over a two-minute period. Intraperitoneal injections of atropine, dexamethasone, heparin, and aminoguanidine were administered ten minutes before venom instillation to counteract its deleterious effects. After cervical dislocation, abdominal areas were examined for bleeding, and different organs (lung, heart, and kidney) were dissected and prepared for Hematoxylin and Eosin staining to identify any pathological changes.
Results: Intravenous infusion of N. oxiana venom at a dose of 1500 μg/kg resulted in significant ionotropic changes, leading to hypotension and mortality in all animals within eight minutes. While no arrhythmias were observed, the heart rate increased dramatically in the last group. Pretreatment with heparin (29±2.1%) and aminoguanidine (21±1.2%) prevented hypotension at eight minutes, but all animals eventually died at 20 minutes. Light microscopic examination revealed disruption of alveolar walls in the lungs, along with the presence of red blood cells and inflammatory cells. No pathological abnormalities were observed in other organs.
Conclusion: N. oxiana bite, belonging to the Elapidae family, exhibits neurotoxic properties in humans. This preliminary study demonstrates that in large doses, the

venom induces significant negative ionotropic effects in rats. Our results suggest that systemic vasodilation is the primary effect of this venom, as pretreatment with heparin and aminoguanidine substantially mitigated this effect. No pathological abnormalities were observed in organs other than the lungs. Further investigation into higher doses of heparin and aminoguanidine may extend the survival of envenomed rats.

Keywords: Naja oxiana, venom, snake, hemodynamic, aminoguanidine

Right Anterior Minithoracotomy: a Safe Approach for Surgical ASD Closure

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Introduction: Atrial Septal Defect (ASD) is one of the most common congenital heart diseases. Right anterior minithoracotomy (RAMT) is a promising technique for surgical closure of ASD. Hence this study was conducted to assess and compare the safety of minimally invasive right anterior minithoracotomy (RAMT) with peripheral cannulation and compare its clinical outcome with full median sternotomy (conventional median sternotomy, CMS) in surgical atrial septal defect closure.

Material and Methods: In this quantitative cross-sectional study all Clinical records of 51 patients (30 RAMT and 21 CMS) who underwent ASDII closure between March 2016 and November 2019 were collected.

Results: Thirty patients (23 female, 7 male) of RAMT and 21 patients (10 female, 11 male) of CMS ASD closure completed the study. Both groups were the same in age (P = 0.18), EF (P = 0.46), preoperative hemoglobin (P = 0.67), family status (P = 0.30), education (P = 0.54), and employment status (P = 0.29). Operation length, CPB time, mean aortic cross clamp time were significantly less in CMS group (p < 0.001). Mean amount of chest tube drainage in the first 24 hours after surgery was 148.27 ± 122.82 ml in the RAMT group vs. 217.50 ± 134.04 ml in the CMS group (P = 0.02).

Discussion and Conclusions: Despite longer operation and cardiopulmonary bypass times RAMT procedure was associated with similar mortality and less postoperative bleeding.

Keywords: Thoracotomy, Heart Septal Defects, Minimally Invasive Surgical Procedures

Assessment and Comparing the Health Related Quality of Life(HRQL) after Surgical Atrial Septal Defect Closure, Right Lateral Minithoracotomy(RAMT) versus Conventional Median Sternotomy(CMS) : A cross-sectional study

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Introduction: The Health Related Quality of Life (HRQL) is a subset of the general concept of quality of life that is subjective and includes domains related to physical, mental, and social function. The aim of this study is to assess and comparing the quality of life of ASD patients who underwent surgical ASD closure between RAMT versus CMS approaches.

Material and Methods: In this cross-sectional study, Quality of Life was evaluated using a Short Form-12 (SF-12) questionnaire. A short form 12 (SF-12) questionnaire was used to assess the HRQOL that can be reported as a Physical Component Summary (PCS) and Mental Component Summary (MCS). The total HRQOL score is the sum of the PCS and MCS.

Results: Twenty eight patients in RAMT group and 20 patients in CMS group completed the study in quality of life assessment part. The mean MCS and total HRQOL score had no difference considering men and women separately. Mean PCS score was significantly better in female patients of RAMT group (P = 0.03).

Discussion and Conclusions: Female patients undergoing ASD closure through RAMT approach have better physical function postoperatively and less limitation caused by physical problems.

Key words: Quality of life, Thoracotomy, Heart Septal Defects, Minimally Invasive Surgical Procedures

Designation of an aid tool to reduce the unnecessary diagnostic angiography

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Background: Early detection of coronary artery disease (CAD) with coronary angiography can prevent disability, economic damage, and death. However, it may act appositely by increasing unnecessary angiography. Here we aim to propose a prediction model according to baseline characteristics and routine laboratory tests to reduce the unnecessary coronary angiographies.

Method: Based on an angiography database of 1186 angiography reports (406 Angio- and 780 Angio+) different prediction models were designated. We have used different machine learning models including multiple logistic regression (MLR), C5.0 algorithm (with boosting), random tree, support vector machine (SVM), artificial neural network (ANN), K-nearest neighbor (KNN), Naive Bayes and an ensemble model. Data analyzed in 4 steps; (1) simple preprocessing, (2) using feature selection (FS), (3) balancing data with oversampling, and (4) using both FS and oversampling to build models. We used different parameters such as accuracy, precision, sensitivity, specificity, f1-measure, and ROC curve to evaluate the models.

Result: The best results belonged to the models using feature selection and over-

sampling techniques. The C5.0 using boosting and the ensemble models had the highest accuracy. Sensitivity and specificity were about 97.42% and 99.43% for the C5.0 model and 97.3% and 95.91% for the ensemble model, respectively. Predictor importance analysis showed that high sensitive C-reactive protein (hs-CRP) had a high association with CAD. Other features such as age, systolic blood pressure (SBP), fasting blood glucose (FBG), and gender had important predicting roles in the models.

Conclusion: The study indicated that by analyzing the input features of gender, age, FBG, SBP, hs-CRP, diastolic blood pressure (DBP) and trigelycerides (TG) using these models, it is possible to make an accurate differentiation between Angio- and Angio+ patients which can use as an aid tool to reduce the unnecessary angiographies. However further studies should be done to validate this model.

Keywords: Machine learning, Coronary Artery Disease (CAD), C5.0, Ensemble Model, Artificial Neural Network (ANN), Coronary Angiography, Feature Selection

SARS-CoV-2 virus causes endothelial dysfunction by dysregulation of Nrf2, NOX2 and iNOS genes expression

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Introduction: In December 2019, Wuhan reported the first case of SARS-CoV-2 which through binding to ACE-2, it infects the target cell (1). This enzyme is mostly found in the lung capillaries where the virus first makes contact with the host, but can be found in other tissues as well (2). The clinical phenotype of endothelial dysfunction is similar to the symptoms of COVID-19 infection, according to the evidence (3). Thus, many clinical characteristics of severe COVID-19 disease seem to have endothelial dysfunction as a common denominator (4). Severe forms of Covid-19

are associated with cytokine storm syndrome (CSS) (5). CSS stimulating NF-B activity and ROS accumulation in endothelial cells (6, 7). NF-B activates iNOS, which catalyzes the formation of pro-inflammatory reactive nitrogen species (8). On the other hand, NOX2 is a membrane-bound enzyme complex that is a major source of ROS production and cause vascular damage through increased inflammatory responses (9). But, Nrf2 is a cellular oxidative stress sensor that controls gene expression of antioxidant enzymes (SOD, catalase), so has a protective effects against cellular damage caused by free radicals and oxidative stress (10).

Method: Five ml of tracheobronchial secretions from 34 COVID-19 patients (Alpha and Omicron, n = 17) of ICU and 40 adult patients without COVID-19 of endoscopy-department of Emam-Reza-hospital were collected. Cells separated by centrifuge and TriPure is added to them, stored at –70 °C. Total RNA extracted and cDNA was synthesized then primers and probes were designed for Nrf2, NOX2 and iNOS. Real-time PCR was performed. Data were analyzed (Ethics identifier of MUMS: IR.MUMS.MEDICAL.REC.1401.500).

Results: iNOS expression in Covid- omicron group increased compared to the control and Covid- alpha groups (p<0.001 for both). Expression of Nrf2 in omicron was higher than control and alpha groups (p<0.05 for both). NOX2 expression in both Covid-alpha and omicron increased compared to control (p<0.05 for both).

Conclusion: Covid-19 virus increases expression and secretion of Nrf2, NOX2 and iNOS genes due to the CSS NF-B activity and ROS accumulation. NOX2 and iNOS increase formation of pro-inflammatory and ROS production and cause vascular damage through increased inflammatory responses. In order to deal with these disorders, Nrf2 level increases in these patients.

Key words: COVID-19, Nrf2, NOX2, iNOS

The administration of human amniotic membrane-derived stem cells through intra-myocardial injection resulted in a reduction of interleukins 10 and 17 inflammatory cytokines in a rat model of heart failure

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Heart failure (HF) is widely recognized as a prevalent cardiac condition. According to recent research, amniotic membrane stem cells (AMSC) via injections have the potential to enhance cardiac performance. So, the main goal of this study was to find out what happened to inflammatory cytokines when human amniotic membrane-derived stem cells (hAMCs) were injected into the heart of a rat model of HF. Twenty-eight male Wistar rats were allocated into four distinct groups for the purpose of this study. These groups included a control group, an HF group, a group receiving injections of culture medium, and a group receiving injections of hAMCs. After 60 days, blood samples were taken from the animals, and the enzyme-linked immunosorbent assay (ELISA) method was used to measure the levels of interleukins 10 (IL-10) and 17 (IL-17). By giving hAMCs to male rats with HF, the study found that the expression of IL-17 went down and the expression of IL-10 went up. The results show that hAMCs can be a candidate for further investigation into inflammation-lowering in HF.

Keywords: Interleukin 10, Interleukin 17, Inflammation, Heart failure, Stem cell.

Adjusting Inflammatory Factors in Vivo in Human Amniotic Membrane Mesenchymal Stem Cell-Derived Conditioned Medium

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Background: Many people either get heart failure (HF) or pass away from it. Human Amniotic Membrane Mesenchymal Stem Cell-Derived Conditioned Medium (hAMSCs-CM) therapy is one of the best HF therapies. For the first time, we conducted an experiment to ascertain the mechanism of action of the hAMSCs-CM, concentrating on TGF-β and Galactin-3, utilizing an animal model of heart failure.

Methods: We grouped 40 rats into 4 groups using the categories of Control, HF, Culture Medium, and Conditioned Medium (CM). All rats aside from the control group got an injection of isoproterenol. Rats given culture medium received culture media, while rats given CM received CM. The serum fibrotic factors were then measured using an ELISA.

Results: hAMSCs-CM therapy considerably increased TGF-β and Galactin-3 levels in controls while significantly decreasing TGF-β and Galactin-3 levels in HF rats when compared to HF and culture media.

Conclusion: Our findings partially addressed the gap in HF therapy because hAMSCs-CM changed inflammatory cytokines of TGF-β and Galactin-3.

Keywords: Mesenchymal stem cells, heart failure, inflammation

Human Amniotic Membrane Mesenchymal Stem Cells-Derived Conditioned Medium Modifies Myofibrotic Factors In Vivo

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Background: Many people either get heart failure (HF) or die from it. Human Amniotic Membrane Mesenchymal Stem Cell-Derived Conditioned Medium (hAMSCs-CM) therapy is one of the most efficient HF treatments. For the first time, we conducted an experiment to ascertain the mechanism of action of the hAMSCs-CM, concentrating on MCP1 and BNP, using an animal model of heart failure.

Methods: We grouped 40 rats into 4 groups using the categories of Control, HF, Culture Medium, and Conditioned Medium (CM). All rats aside from the control group got an injection of isoproterenol (ISO). Rats given culture medium received culture media, while rats given CM received CM. The serum fibrotic factors were then measured using an ELISA.

Results: Compared to HF and culture medium, hAMSCs-CM therapy significantly increased MCP1 and BNP variables in controls while significantly decreasing MCP1 and BNP variables in HF rats.

Conclusion: Our findings largely addressed the gap in HF therapy because hAMSCs-CM reduced fibrogenic cytokines of MCP1 and BNP in ISO-stimulated HF male rats.

Keywords: Mesenchymal stem cells, heart failure, fibrosis

Human amniotic membrane mesenchymal stem cells' conditioned medium improved myocardial fibrosis in rats

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Background: Fibrosis production is a major cause of heart failure (HF), which kills many individuals. The modulation of injured myocytes' deregulated Ald, which causes fibrosis, can enhance HF. Anyway, treatment with conditioned medium produced from human amniotic membrane mesenchymal stem cells (hAMSCs-CM) is one of the most successful HF treatments. The investigation of the in vivo mode of action of hAMSCs-CM on HF fibrosis with a first-time focus on the indicated proteins was a study innovation.

Methods: The four groups of rats were healthy control, HF, culture medium, and CM. All rats, aside from the control, received injections of isoproterenol (ISO) to cause HF. The culture medium group was treated with culture medium, while the CM group was treated with CM. Then, serum Ald was assessed by ELISA, and cardiac functions were tested by echocardiography.

Results: In contrast to controls, hAMSCs-CM treatment reduced Ald in comparison to the HF model. EF and FS significantly decreased in the HF and Culture Media groups compared to the control group four weeks after CM administration. Although hAMSCs-CM treatment made them better, it was unable to restore their cardiac function to a normal range.

Conclusion: Since hAMSCs-CM increased cardiac function and ald protein, our result partially filled the gap left by HF therapy.

Keywords: Human amniotic membrane mesenchymal stem cells, Conditioned medium, heart failure, Ald

Human amniotic membrane mesenchymal stem cells' conditioned medium adjusts PRA and ACE in rats with heart failure

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Background: Because of the development of fibrosis, many people pass away from heart failure (HF). PRA and ACE modulation can enhance HF because damaged myocytes unagglomerate them, leading to fibrosis. However, human amniotic membrane mesenchymal stem cells conditioned medium (hAMSCs-CM) can be considered one of the best HF therapies. Our investigation of the in vivo mode of action of hAMSCs-CM on HF fibrosis with a first-time concentration of PRA and ACE proteins was novel research. We anticipated that this attempt would partially close the data gap in HF control.

Methods: The four subcategories of rats involved control, HF, culture medium, and CM. All rats except for the healthy controls were injected with isoproterenol (ISO) to induce HF. The culture medium subgroup received culture medium, and the CM group received injections of CM. Subsequently, the circulating fibrosis was analyzed with ELISA.

Results: In contrast to controls, hAMSCs-CM treatment increased PRA and ACE while decreasing them in the HF animals.

Conclusion: Our results partly filled in the gaps left by HF therapy because hAMSCs-CM decreased the levels of PRA and ACE fibrogenic agents in the serum.

Keywords: Human amniotic membrane mesenchymal stem cells, Conditioned medium, heart failure, PRA, ACE

Human amniotic membrane mesenchymal stem cells' conditioned medium reduces TIMP-2 and Ang in myocardial fibrosis

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Background: Because of the development of fibrosis, many people struggle with heart failure (HF). TIMP-2 and Ang modulation can reduce HF because damaged myocytes dysregulate them, causing fibrosis. Human amniotic membrane mesenchymal stem cells conditioned-medium (hAMSCs-CM) treatment is one of the best HF therapies. This was a unique study that looked into how hAMSCs-CM work on HF fibrosis in living things, with a focus on the proteins that were mentioned. We anticipated that this investigation would somewhat plug the information gap in HF therapeutics.

Methods: The four categories of rats contained control, HF, culture medium, and CM. All animals aside from the control ones received injections of isoproterenol (ISO) to cause HF. The culture medium group received culture medium, while the CM group received injections of CM. Then, serum fibrosis was evaluated by ELISA.

Results: In comparison to controls, hAMSCs-CM treatment increased Ang and decreased TIMP-2, while the HF model reversed both. Conclusion: Our results help fill in some of the gaps in heart failure treatments because hAMSCs-CM lowered some markers of cardiac fibrosis and fibrogenicity in the blood.

Keywords: Human amniotic membrane mesenchymal stem cells, Conditioned medium, heart failure, TIMP-2, Ang

Human amniotic membrane mesenchymal stem cells' conditioned medium reduces myocardial fibrosis factors

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Background: Because of the development of fibrosis, many people die from

heart failure (HF). MMP-2 and MMP-4 modulation can reduce HF because damaged myocytes dysregulate them, causing fibrosis. In any case, Human amniotic membrane mesenchymal stem cells-derived conditioned medium (hAMSCs-CM) therapy is one of the best HF therapies. The investigation of the in vivo mode of action of hAMSCs-CM on HF fibrosis with a first-time focus on the indicated proteins was a study innovation. We anticipated that this investigation would partially close the knowledge gap in HF treatment.

Methods: The four groups of foamy rats were control, HF, culture medium, and CM. All animals aside from the control received injections of isoproterenol (ISO) to cause HF. The culture medium group received culture medium, while the CM group received injections of CM. Then, serum fibrosis was assessed by ELISA.

Results: In comparison to controls, hAMSCs-CM treatment increased MMP-2 and MMP-4, while the HF model lowered both.

Conclusion: Our results help fill in some of the gaps in heart failure treatments because hAMSCs-CM lowered some markers of cardiac fibrosis and fibrogenicity in the blood.

Keywords: Human amniotic membrane mesenchymal stem cells, Conditioned medium, heart failure, cardiac fibrosis

The relationship between the severity of coronary artery disease in angiography and the incidence of short-term major cardiovascular events of patients with Covid-19 and myocardial infarction: a cross-sectional study in Iran

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Background: Coronary artery disease (CAD) has been frequently recognized as a risk factor for poor prognosis in COVID-19 patients. Syntax score is an invasive coronary angiographic-based tool used to determine the severity of CAD.

In this study, we aim to investigate the prognostic significance of syntax score for mortality and morbidity among COVID-19 patients.

Methods: In this cross-sectional study, we have included patients with confirmed COVID-19 diagnosis who underwent percutaneous coronary intervention (PCI). Based on angiographic records, the CAD complexity was measured by Syntax score, and echocardiographic variables were documented. The laboratory data were obtained from the HISS database of the hospital. All patients were followed up one month after discharge for new cardiovascular events, rehospitalization, heart failure (HF), stent thrombosis, cerebrovascular accidents, and death.

Results: In one month, 108 patients were included in the study. The mean age was 64.8±11.6, and 74 % were male. The Cox regression model found no association between the Syntax score and the composite outcomes. In the univariate cox proportional HR model, MPV, LDH, and ESR were found to have predictive significance for in-hospital death. AKI was resulted to be significantly associated with rehospitalization in multivariate analysis.

Conclusion: The present study did not find a significant association between adverse outcomes and syntax score in COVID-19 patients referred for PCI. Acute kidney injury and duration of ICU stay was found to be the main factor predicting rehospitalization and HF. Future studies are needed to confirm these findings.

Keywords: Percutaneous coronary intervention, cardiovascular events, Covid-19, myocardial infarction, SARS-CoV2.

impact of artificial intelligence in clinical nursing care of patient with coronary heart disease: A scoping review

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introduction: Artificial Intelligence (AI) is a new science and technology that researches and develops theories, methods, technologies and application systems for simulating, extending and expanding human intelligence, and is an important branch of computer science.To present an overview of how artificial intelligence has been used to improve clinical nursing care.

Materials and Methods: A scoping review was conducted. We systemati-

cally searched six scholarly databases (CINAHL, Cochrane Library, EMBASE, PubMed, Scopus, and Web of Science) were searched from 2010 till 2023 .

Results:. Eight studies meeting the inclusion criteria were found . Incorporation of AI into healthcare, nursing diagnoses, formulating nursing care plans patient monitoring, patient care prediction such as falls prediction (most common) and wound management , cardiac rehabilitation delivery, and monitoring holds great potential for early detection of cardiac events, allowing for home-based monitoring, and improved clinician decision making. Various techniques of machine learning and classification were used for predictive analyses and to improve nurses' preparedness and management of patients' conditions.

Discussion and Conclusions: This review highlighted the potential of artificial intelligence in improving the quality of nursing care. However, more randomized controlled trials in real-life healthcare settings should be conducted to enhance the rigor of evidence. Implications for Nursing Management: Education in the application of artificial intelligence should be promoted to empower nurses to lead technological transformations and not passively trail behind others.

Keywords: Artificial Intelligence, , Nursing, Patient Care, Health Care, coronary heart disease

A Novel Workflow for Health Survey Analysis: Results on the Yazd Health Study (YaHS)

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Introduction: Health surveys are one of the most prominent sources of information in medical sciences. Even though there has been a multitude of methodologies proposed for survey analysis, many of them are biased towards the previous hypotheses, the fact which may lead to spurious results by neglecting the whole structure of relations among the factors. Here, we proposed our novel workflow on survey analysis.

Materials and Methods: By gathering the previously less-utilized graphical models on survey analysis, newly-proposed methods, and commonly-used tools of prediction and hypothesis testing our workflow provides the medical community with an end-to-end pipeline for comprehensive statistical analysis of health surveys. To demonstrate the functionality of our workflow, we validate it on the Yazd Health Study (YaHS) dataset, in which a questionnaire of 300 questions from 10000 participants associated with 40 laboratory measurements from a subset of 4010 individuals is acquired from the residents of the Yazd.

Results: The significant difference in creatinine levels between males and females, the relation between systolic blood pressure and history of kidney stone surgery, and the difference between HDL levels of males and female are among the results. Moreover, our minimal forest could efficiently detect the effect of familial history in asthma and AD on the vulnerability of these diseases. Our minimal forest also finds the difference between the tendency of thyroid problems between men and women. In this article, we reported some of the results of our VKL analyses on heart diseases, thyroid problems, and osteoporosis — the findings of which can be introduced as candidate biomarkers of these diseases. Besides, our VVKL method surprisingly finds FSG as the feature which violates the linear relation between fat and systolic blood pressure.

Discussion and Conclusion: All in all, our comprehensive analysis led to numerous findings each of which demands more focused statistical and experimental validations. This study has gone some way towards enhancing the methodological practice of health survey analyses. Further, the workflow may have many implications in survey analyses in other fields, such as social sciences, economics, and environmental research. Results so far have been very encouraging on the Iranian population, and the workflow should also be examined on the other populations. Most of our novel findings are surprisingly observed in the clinics, each of which is potential to raise a promising hypothesis.

Keywords: Health survey, Questionnaire data, multivariate data analysis

Polypill strategy in post-myocardial infarction, results of one-year follow-up of a randomized clinical trial.

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Introduction: Medication adherence is extremely important for better patient survival after an episode of acute myocardial infarction. Polypill strategy, which is use of a fixed-dose combination of the essential drugs might improve the medication adherence and subsequently medical and psychosocial consequences in those patients.

Materials and Methods: we conducted a two-arm randomized clinical trial on patients hospitalized because of an AMI. we compared administration of a polypill composed of a fixed dose combination of aspirin (81mg), atorvastatin (40mg), metoprolol (50 mg), and Valsartan (40 mg) once every day with usual care in the patients. This study presents the results of one-year follow-up of the two groups. Rate of hospitalization during follow-up was determined by exploring the medical documents. Depression and anxiety were measured by the Patient Health Questionnaire (PHQ-9) and the Kessler Psychological Distress scale-6 (K6), respectively.

Results: So far, 547 patients (polypill: 236, usual care: 311) have been recruited and followed for 12 months (male: 43.2% and 56.8% in the polypill vs usual care group, p= 0.949) with a mean age of 56.9±9.1 (57.4±8.5 and 56.6±9.5 in the polypill vs usual care group, p= 0.311). Rate of hospitalization was significantly lower in the polypill group compared with the usual care group (25(33.8%) vs 49(66.2%), p<0.001). Although, the depression and anxiety scores were lower in one-year follow-up compared with baseline in both groups, the mean difference of the scores were significantly lower in the polypill group (p<0.001 for both anxiety and depression scores).

Discussion and Conclusion: Use of polypill in post-MI patients might decreases hospitalization and improve psychological status of the patients such as anxiety and depression.

Keywords: Acute myocardial infarction, Fixed dose combination therapy, Depression, Anxiety

Association between the dietary inflammatory index and markers of endothelial and systemic inflammation in hemodialysis patients

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Introduction: The current survey aimed to investigate the link between energy-adjusted dietary inflammatory index (E-DII) and risk factors for CVD including markers of endothelial and systemic inflammation in Iranian hemodialysis patients.

Materials and Methods: Patients on hemodialysis for at least 6 months prior to enrollment were considered eligible in this cross-sectional study. The usual dietary intakes of the hemodialysis individuals were examined through 4 non-consecutive days including 2 dialysis days and 2 non-dialysis days using a 24-h recall approach to calculate E-DII. Multiple linear regression analysis was utilized to investigate the link between E-DII and selected biomarkers of inflammation and oxidative stress including high-sensitive C reactive protein (hs-CRP), serum intercellular adhesion molecule (sICAM), serum vascular cell adhesion molecule (sVCAM), malondialdehyde, and nitric oxide (NO), sE-selectin, and endothelin-1, and beta (β) and 95% confidence interval (CI) was reported. Value of $p < 0.05$ was considered statistically significant.

Results: Overall, 291 hemodialysis patients make up our study population. In the crude model, the E-DII score was positively associated with a higher sVCAM-1 ($\beta = 177.39$; 95% CI: 60.51, 294.26; p-trend $= 0.003$). Further adjustment for potential confounders attenuated the findings in a way that an increase of 128.72 in the sVCAM-1 was observed when the E-DII score increased from -2.68 to -1.14 (95% CI: 13.50, 243.94). After controlling for potential confounders, E-DII was associated with sE-selectin in hemodialysis patients in the highest category of E-DII as compared to the lowest category ($\beta = 4.11$; 95% CI: 0.22, 8.00; p-trend $= 0.039$).

Discussion and Conclusion: The present findings suggest that adherence to

a pro-inflammatory diet among hemodialysis patients is associated with a higher inflammatory status as evidenced by sVCAM-1 and sE-selectin; however, bi-directionality may exist and the role of residual confounders should be taken into account. Therefore, more longitudinal investigations are needed to elucidate the role of diet on the inflammatory status of hemodialysis patients.

Keywords: Diet; Dietary Inflammatory Index; Hemodialysis; Inflammation

Prevalence & predictors of coronary slow flow phenomenon in Mashhad Ghaem Hospital

Bahram Shahri

Background: coronary slow flow phenomenon (CSFP) is a syndrome characterized by delayed progression of the injected contrast through the epicardial coronary arteries, in the absence of significant stenosis. It is associated with myocardial ischemia, life-threatening arrhythmias, sudden cardiac death, and recurrent acute coronary syndromes.

Purpose: The aim of this study was to determine the prevalence of CSFP and its risk factors.

Methods: This cross-sectional study was conducted on all patients undergoing diagnostic coronary angiography because of clinical suspicion of cardiovascular disease in Mashhad Ghaem Hospital from March 2019 to March 2020. The individual information checklist was completed and the diagnosis of the CSFP made on the basis of corrected TIMI frame count > 27 frames.

Results: In the present study, among 1112 patients undergoing coronary angiography, 7.5% had the criteria of CSFP. statistical tests indicated a significant association between male sex, smoking and hypertension (P-Value<0.05) with CSFP, but factors such as age, Diabetes mellitus, hyperlipidemia, family history of heart disease & BMI had no significant difference in patients with and without CSFP.

Conclusion: coronary slow flow phenomenon is a frequent finding during diagnostic coronary angiography. Some risk factors such as male sex, smoking and hypertension may increase the chance of the disease.

Keywords: Coronary slow flow phenomenon, Coronary Angiography ,Ischemic heart disease , Risk factor.

Investigating the effect of follow-up plan of nurse education to patients on the quality of life of patients with heart failure after discharge

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Helping chronic patients and their families to effectively deal with the needs of health care management is an essential issue in the nursing paradigm and health care field1)). Heart failure is a complex syndrome with increasing prevalence in the world and one of the main causes of morbidity and mortality worldwide (2). Lifestyle-related risk factors are modifiable and thus may be relevant targets in the prevention of heart failure. The current knowledge about the relationship between lifestyle factors and heart failure mostly originates from observational studies (3). The aim of this study was to investigate the relationship between various factors and barriers to lifestyle changes with the risk of heart failure.

method: Qualitative approach, applied thematic analysis was used with semi-structured interview during telephone follow-up at home of patients with HF in 1401. Self-care literacy was evaluated using a telephone follow-up question-naire of patients with CHF from the Ministry of Health and Medical Education. Data collection tools included an information form including age, sex, education level, interviewee, place of residence, examination of the patient's physical con-dition in terms of movement, diabetes and blood pressure, bed sores, determina-tion of follow-up frequency and examination of self-care status.

The self-care status survey has 21 questions that assess health-promoting behav-iors in relation to Signs and symptoms of disease recurrence, names and side effects of drugs, nutrition pattern (following a low-salt diet, control (daily, how and when) and daily weight notes, the amount of daily liquid drinking), Insomnia, smoking, alcohol and drug use, next time to see a doctor, necessary measures in case of danger symptoms, feeling of change in condition after discharge from the hospital, number of re-visits to the hospital after discharge, compliance with the orders suggested by the doctor and nurse, cases of new problems and if there is a new problem, it will report the actions taken, it will measure the level of satisfaction with the telephone follow-up process. The scoring of the questionnaire is based on the Likert scale. This questionnaire was completed the day after discharge, one month later and monthly for one year. Lifestyle education was provided in each turn of the telephone interview and purposeful sampling was used to identify the

participants. Data analysis was done using spss software with version 22.

Results:There was no statistically significant difference with each other in terms of demographic characteristics. Before the intervention, the average score of the total lifestyle in the test group was 109.82 with a standard deviation of 46.93 and in the control group it was 101.83 with a standard deviation of 35.32, which did not show a statistically significant difference between the two groups. Three months after the intervention, the average total score in the test group was 127.73 with a standard deviation of 44.23 and in the control group it was 103.32 with a standard deviation of 27.78 that was statistically significant. Before the intervention, the average score in the two groups did not show a statistically significant difference, but after the training with the determination of feedback, the average score in the test group was significantly higher than the control group.

Conclusion: Follow-up after discharge leads to improvement of lifestyle and its fields in heart failure patients. It is recommended to improve the lifestyle of people with heart failure by using the method of follow-up training after discharge from the hospital by nurses.

key words: Education, heart failure, quality of life

Investigating the risk factors of myocardial infarction in patients admitted to the ccu department of Heshmat Rasht Hospital in 1401

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Introduction and goal: Myocardial infarction is known as the most important cause of death in most countries of the world, and according to official statistics, the death rate caused by this phenomenon is increasing in Iran. The main cause of myocardial infarction is coronary arteriosclerosis. The most important action in minimizing the amount of this disease and its complications is to minimize the risk factors. This study was conducted with the aim of determining the risk factors of myocardial infarction in Heshmat Hospital

method: The present study is a descriptive cross-sectional type in which the research samples were conducted through the review of 300 cases related to patients hospitalized during the year 1401 with the diagnosis of STEMI myocardial

infarction. Information was collected through a two-part questionnaire (demographic information- Information on the risk factors of coronary artery disease and physiological parameters - duration of hospitalization and the outcome of the disease) were collected. The findings were analyzed using spss software.

Results: The findings showed that myocardial infarction was more common in women (175 cases). The age range of the samples was 39-71 years. High blood pressure (52%), diabetes (27%), hyperlipidemia (20%), smoking (17%) were the most common risk factors, respectively. The death rate was 8%.

Discussion: Considering that the mentioned risk factors can be controlled. Therefore, by adjusting these risk factors, a big step can be taken in preventing STEMI myocardial infarction. In this way, a significant part of the direct and indirect costs caused by this disease will be reduced.

Keywords: myocardial infarction, risk factors

Comparing 10-year risk of Cardiovascular Disease Between Rural and Urban Areas in Iran: A Cross-Sectional Study

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Introduction: Cardiovascular disease (CVD) is the most common cause of death worldwide. The primary approach to preventing CVD is to address and control its risk factors. Despite the well-known prevalence of CVD risk factors, limited research has been conducted to investigate the differences in CVD risk between rural and urban areas in Iran. This study aimed to compare the CVD risk and its risk factors between rural and urban populations in Iran.

Materials and Methods: The study was conducted using data from two sources, the Fasa Adults Cohort Study (FACS) and Shiraz Heart Study (SHS). It was a cross-sectional study that included participants aged 40 to 70, with those having missing data excluded. The study categorized individuals as residents of rural or urban areas based on their participation in either the FACS or SHS. The study used the ASCVD risk score to estimate the 10-year CVD risk. The prevalence of CVD risk factors was compared among participants in urban and rural areas.

T-test and chi-square tests were used to compare the means and frequencies of quantitive and qualitative variables, respectively.

Results: This study involved 14,218 individuals, with a mean age of 51.94 ± 7.97 years, including 7,206 participants from FACS and 7,012 individuals from SHS. Those in urban areas had a significantly higher average ASCVD score compared to those in rural areas (5.88=6.44 vs. 4.79‡5.61, p-value 0.001). The prevalence of participants with high (4.4% vs. 2.8%) and intermediate (34.5% vs. 29.4%) CVD risk was significantly higher in urban areas; while the prevalence of low-risk participants was higher in rural areas (67.8% vs 61.0%). Participants in urban areas were more likely to have higher body mass index, waist circumference, cholesterol, fasting blood glucose, systolic blood pressure, educational attainment, and occupational status. However, smoking and opium consumption were more prevalent in rural areas.

Discussion and Conclusion: In conclusion, residing in cities has been linked to a greater risk of cardiovascular disease. Therefore, measures to enforce stricter control over risk factors such as obesity, diabetes, hypertension, dyslipidemia, and smoking should be implemented in urban areas. Conversely, individuals in rural areas should be motivated to quit smoking and enhance their understanding of CVD.

Keywords: risk factor, risk score, rural-urban, risk-assessment, prevention

The effects of an educational discharge program based on Orem's self-care model on treatment adherence in patients undergoing coronary angioplasty

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Background: Patient education at the time of discharge based on models promoting self-care behaviors can make a significant contribution to patients' adoption of a treatment adherence. Accordingly, the present study was conducted to investigate the effects of an educational discharge program based on Orem's self-care model on treatment adherence in patients who had undergoing coronary angioplasty in the south of Iran.

Methods: The present study is an interventional study. 80patients who had under-

going coronary angioplasty were randomly divided into an intervention (N=40) and a control group (N=40). Data were collected between May and November 2022. The data collection instruments consisted of angioplasty patients' treatment adherence questionnaire. The collected data were analyzed using SPSS v. 23.

Results: The means and standard deviations of the participants' ages in the intervention and control groups were 57.33±5.43 and59.40±10.29 years respectively. The treatment adherence means scores of the intervention group as measured immediately (45.55±4.32) and three months after intervention (34.1 4.7±) were significant (p<0.05). As for the control group, however, the difference was not significant.

Conclusions: The findings of the study showed that the educational discharge program based on Orem's self-care model had a positive impact on the treatment adherence of patients who had undergone coronary angioplasty. Therefore, it is suggested that healthcare administrators take measures to establish this new approach to patient education in the discharge plans of other patients.

Keywords: Self Care Model, Angioplasty, Patient education, Discharge planning, Treatment adherence

Investigating Spiritual health and Health promoting behaviors in the Elderly with Hypertension: a descriptive-cross-sectional Study

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Introduction: Hypertension is known as one of the most important challenges of the health system in most age groups, especially the elderly. Spiritual health and health-promoting behaviors in the elderly with chronic diseases can play an important role in improving the quality of life. Therefore, the present study was conducted with the aim of investigating the spiritual health and promoting behaviors in the elderly with hypertension who referred to the Fasa heart clinic in the south of Iran in 1402.

Materials and Methods: The present study is a cross-sectional study. 347 elderly people with hypertension participated in this research selected via convenience sampling. Data collection tools included the demographic information collection

form, Spiritual Health Questionnaire, and Walker; Health Promoting Lifestyle Questionnaire. Data were analyzed using SPSS-23 software and descriptive tests, t-test, chi-square, Pearson's correlation coefficient and logistic regression.

Results: The average age of the participants in the study was 54.2±1.89 years. In this study, 33.1% of the participants were women and 66.9% were men. The mean and standard deviation of spiritual health is 83.3±18, which is at the average level. Also, the average and standard deviation of the total score of promoting behaviors was 127.7±17.3, which was at the average level. Pearson's correlation coefficient showed a positive and significant relationship between spiritual health and health-promoting behaviors (P<0.05).

Discussion and Conclusion: The results of the study showed that the average score of spiritual health and health promoting behaviors of the elderly with hypertension is at an average level. Therefore, the managers of the health system and the policy makers of the health-treatment system should use the necessary plans to promote spiritual health and health-promoting behaviors in the elderly with hypertension.

Key words: Aging, Spiritual health, Health promoting behaviors, Hypertension

The effect of empagliflozin on cardiac and echocardiographic indicators, clinical performance and quality of life of non-diabetic patients suffering heart failure with reduced Ejection Fraction

Nasim Arabzadeh

Background: The effect of empagliflozin in improving the hyperglycemic condition as well as cardiovascular function in patients with type 2 diabetes mellitus has been shown in various studies. Also, it has been determined that the administration of this drug in healthy non-diabetic people does not cause significant changes in glycemic indices, but there is evidence of improvement in cardiovascular indices in the field of heart failure in both diabetic and non-diabetic patients. What we discussed in this study was the evaluation of the effect of the mentioned drug in the therapeutic dose on cardiac and echocardiographic indicators, clinical performance indicators and also the quality of life of non-diabetic patients with heart failure with reduced ventricular function or reduced left ventricular ejection fraction (LVEF).

Methods: In a randomized clinical trial, 44 patients with heart failure with LVEF

less than 40% and non-diabetics were randomly treated with empagliflozin (at a dose of 10 mg) or placebo for eight weeks and at the end of the treatment period, echocardiographic indicators, clinical performance status (based on NYHA score and MWT-6 index), renal function, patients' quality of life (based on WHO-BREF questionnaire) and side effects after treatment were evaluated.

Results: The administration of empagliflozin was associated with a significant improvement in the two components of physical condition and mental condition in the mentioned patients. The administration of this drug had a significant effect on improving the clinical performance of 6-MWT. Thirdly, among the echocardiographic indices, the administration of empagliflozin was associated with a significant improvement in pulmonary artery pressure (PAP) value. Also, all observed cases of recovery were completely independent of the two indices of gender and age of the patients, and this independence of effect was also shown in the multivariate linear regression models.

Conclusion: In non-diabetic patients with heart failure with reduced LVEF, the administration of empagliflozin at a therapeutic dose of 10 mg is associated with an improvement in the cardiac parameter of PAP, which can improve the functional capacity of patients (based on parameter 6-MWT) and also improve the quality of life of patients in both physical and mental components.

Association of inflammatory markers and lifestyle risk factors of CAD in patients with coronary artery disease

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Introduction: Inflammation is widely considered to be an important contributing factor of the pathophysiology of coronary heart disease (CHD), and the inflammatory cascade is particularly important in the atherosclerotic process.

This study was conducted to examine the association between CAD risk factors and inflammatory markers including interleukin 6 (IL-6) and high sensitivity C-reactive protein (hs-CRP), in CAD patients .

Materials and Methods: This study included 150 men Patients aged ≥45 years with first ever symptomatic CAD that had been confirmed by angiography. A semi-quantitative food frequency questionnaire was used to assess the usual intakes.Dietary information were extracted by N4 software.The 12-h fasting blood samples were collected for biochemical assessment, including IL6 and hs-CRP, FBS, and lipid profiles. Life style risk factors including BMI; dietary intake; physical activity,and smoking were also assessed. Data were analyzed by SPSS$_{22}$.

Results: Mean Age and BMI of the subjects were 55.866±7.44, 26.417±2.78 respectively. Mean of hs-CRP and IL6 were 6.11±3.37, 16.745 ±9.45 respectively.

Some of the risk factors showed notable relationship with inflammatory markers, however significant relationship was observed about BMI and Dietary Saturated Fatty acids(p <0.05).

Discussion:BMI and diet are major risk factors together the raised inflammatory markers. An approach to control the modifiable risk factors like obesity and lifestyle changes like diet can reduce the disease burden.

Keywords: Coronary artery disease , hs-CRP, IL-6, lifestyle risk factors

Comparison of walking in the morning and in the afternoon on some cardiovascular indicators and physical fitness of overweight elderly men

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Background: The increase in the elderly population in Iran is rapidly increasing compared to developed countries, cardiovascular diseases alone account for 20-23% of the total burden of diseases in Iran, and this issue is one of the serious concerns of the health system in Iran. Therefore, the purpose of this research is to compare walking in the morning and in the afternoon on some cardiovascular indicators and physical fitness of overweight elderly men.

Methods: The statistical samples of this research were 90 men with an average age of 60±3 years, who were randomly divided into three groups: walking in the morning (30 people), walking in the afternoon (30 people) and the control group (30 people). became The walking groups started 7 walking sessions for 8 weeks and each week for 30 minutes with an intensity of 35% of the maximum

heart rate (HRM) and at the end of 8 weeks they finished with 45 minutes and with an intensity of 50% of the maximum heart rate. The control group did not do any physical activity during this period. In order to check the research variables, 48 hours before and after the implementation of the protocol, performance indicators and 5 cc of blood were taken from the subjects. Analysis of variance was used to analyze the data.

Results: Eight weeks of walking in the morning compared to walking in the evening caused a significant decrease in LDL, total cholesterol, CRP and an increase in HDL (P=0.005). But walking in the evening caused a greater decrease than walking in the morning on weight loss, heart rate, blood pressure, glucose, ALT, AST, ALP. Also, the results of this research showed that walking in the evening caused a significant and greater increase in the amount of maximal oxygen consumption (VO2peak) in elderly men.

Conclusions: According to the results of the research, walking in the afternoon has a greater effect than walking in the morning on heart and liver indicators and weight loss of overweight

Can anthropometric indices predict the chance of hypertension? A multicentre cross-sectional study in Iran

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Objectives:This study aims to assess the prevalence of hypertension (HTN), and determine the relationship between HTN and anthropometric indices including fat distribution, body mass index (BMI), waist-to-hip ratio (WHR) and waist-to-height ratio (WHtR) in Shiraz Heart Study.

Setting:In this cross-sectional study, subjects were enrolled in 25 clinics in Shiraz. I.R. Iran between 2019 and 2021.

Participants: A total number of 7225 individuals were selected, aged between 40 and 70 years of whom 52.3% were female. Among the people living in Shiraz, individuals living far from clinics, cases of mental or physical disabilitiy and doc-

umented cardiovascular diseases were excluded.
Primary and secondary outcome measures
Primary outcome: The association of body composition, WHR, WHtR and BMI with HTN.
Secondary outcome: The sensitivity and specificity of the WHtR for the prediction of HTN.
Results: HTN prevalence was 19.3%. Obesity prevalence was estimated to be 28.5%. WHR and lean body mass showed a significant association with HTN (p<0.05). Receiver operating characteristic for WHtR yielded an area under the curve of 0.62 (95% CI 0.61 to 0.64) and 0.63 (95% CI 0.62 to 0.65) for males and females, respectively. The optimal threshold value yielded 0.54 in men and 0.61 in women. The sensitivity was 72.3% and 73.9% in women and men, with specificity of 48.4% and 44.3%, respectively.
Conclusion: HTN had a meaningful association with all the noted anthropometric indices. WHtR performed well as a predictor of HTN.
Keywords: EPIDEMIOLOGY, Hypertension, Adult cardiology, Cardiac Epidemiology

Gallic acid as a natural antioxidant and inhibitor of Cyclo-oxygenase 2 (Cox-2)

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Introduction: Cyclo-oxygenase 2 (Cox-2) inhibitors have been found to reduce the risk of heart attack and stroke by up to 50% due to reducing inflammation, which is a contributor to cardiovascular disease. This study investigated the antioxidant potential of a natural phenolic compound, Gallic acid (GA), and its interaction with Cox-2.
Methods: The interaction between GA and Cox-2 was investigated by using the SWISSDOCK program. The protein was extracted from the RCSB PDB, and the ligand from the ZINC15 database. Ligand and protein preparation, analysis, and observation of binding results were performed with Chimera 1.14. In addition, the antioxidant potential of GA was evaluated by DPPH-scavenging assay.
Results: Our data showed that the desired binding compound of GA in the active site of Cox-2 may completely block the enzyme's catalytic activity. Also, anti-

oxidant tests exhibited acceptable DPPH scavenging potential of GA (IC50 value of 135 μg/ml) compared to ascorbic acid.

Conclusion: This study highlights that GA as a Cox inhibitor has the potential to be an effective treatment for cardiovascular disease.

Keywords: Phenolic compound, Anti-inflammatory, Heart disease, Molecular docking.

Metacognitive Therapy on Mental Health in Patients with Coronary Heart Disease

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Background: Amidst the medical advancements addressing the physical aspects of Coronary Heart Disease (CHD), the mental health dimension of this condition emerges as a critical facet that demands dedicated investigation and intervention. Metacognitive Therapy (MCT), a relatively novel approach in the therapeutic landscape, holds promise in providing a nuanced understanding of the cognitive processes, the reflections and interpretations individuals make about their thoughts and emotions. This article delves into the promising realm of MCT and its potential role in alleviating mental health burdens and cognitive patterns contributing to anxiety, depression and psychological distress among patients with CHD.

Methods: We conducted a comprehensive review of existing literature from 2018 to 2023 with a critical perspective, utilizing databases such as Google Scholar, PubMed, Medline, Science Direct, Coherence, Embase, Proquest, Magiran Library, and SID. The chosen keywords for our search included " Metacognitive Therapy", "Metacognition", "Mental Health", "Psychological Distress", "Stress", "Anxiety", "Depression", "Coronary Heart Disease", "Cardiovascular Disease", "Systematic Review", and "Meta-Analysis". This method allowed us to gather a substantial body of relevant research to analyze and synthesize the findings.

Results: The results revealed a significant reduction in anxiety and depression, improvement in overall mental health, and enhanced well-being perception following treatment in various forms of personalized MCT, Home-MCT, or Group-

MCT. Moreover, Embedding MCT into cardiac rehabilitation (CR) demonstrated high acceptability and improved efficacy on psychological outcomes.

Conclusion: As MCT showed a great decrease in dysfunctional metacognitions among the majority of patients after treatment and they reported high levels of satisfaction, we suggest that a succinct, internet-based MCT may represent a promising therapeutic approach for individuals with CHD.

Keywords: Metacognitive Therapy, Mental Health, Coronary Heart Disease

Investigating the clinical implications of clonal hematopoiesis and its capabilities as a potential prognostic marker for cardiovascular diseases

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Background: Clonal hematopoiesis (CH) is a disorder originating from the accumulation of somatic mutations in the bone marrow, which creates a cell population derived from a mutated stem/progenitor cell. Although the carriers of this common complication related to the aging process have the possibility of progressing to hematological malignancies, they are significantly prone to cardiovascular diseases (CVD), and the principal cause of their mortality is the latter. The discovery of this correlation opened new horizons in the field of research until recent studies have introduced CH as a new causal risk factor for CVD. This review aimed to investigate the clinical implications of CH and its capabilities as a potential prognostic marker in CVD patients.

Methods: The necessary data for this review were obtained by searching for articles published between 2018 and 2023 in databases including Pubmed, Web of Science, and Google Scholar.

Results: In addition to the natural course of aging, factors such as improper diet, smoking, overweight, and type 2 diabetes led to the accumulation of somatic mutations in stem/progenitor cells. Mutations in JAK2, TET2, DNMT3A, and ASXL1 genes were common in CH. These mutations, along with changes in the production path of pro-inflammatory cytokines, led to the activation of the inflammasome and a chronic inflammatory state, which facilitated the rapid growth of atherosclerotic lesions. Thus, CH carriers had a high risk for coronary artery disease and stroke and had worse outcomes after atherosclerosis events.

Therefore, detection of CH through the assessment of mutations and related clinical conditions can be a potential marker to identify people at high risk of CVD.

Conclusion: CH increases the risk of CVD significantly by altering the inflammatory pathways, and its evaluation can help clinicians understand the prognosis of patients and manage possible events. However, more studies are needed to understand the pathophysiology of CH and its relationship with CVD.

Key words: Clonal hematopoiesis, Cardiovascular disease, Prognostic marker

Investigating the trend of changes in systolic and diastolic blood pressure in two groups of diabetic patients: people with and without a family history of hypertension

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Introduction : Hypertension is one of the most prevalent disorders among the general public. This study was a trend analysis of changes in systolic and diastolic blood pressure and family history of hypertension among diabetic patients participating in a prospective study.

Material and methods: A questionnaire was used to assess the family history of hypertension in diabetes individuals taking part in the Sabzevar Cohort Study. Three measurements of the diastolic and systolic blood pressure were made, separated by a year. The latent growth curve modeling was approached for analysis by R software version 4.3.2.

Results: Of the participating patients, 30.7% did not have a family history of hypertension, whereas 69.3% did. Individuals with a family history of high blood pressure have an average systolic blood pressure of 119.59, whereas those without a family history of high blood pressure had an average systolic blood pressure of 119.671 at the start of the study. The difference in initial systolic blood pressure was not statistically significant (p-value = 0.317). Compared to the group without a family history of hypertension, the group with a family history of hypertension showed a greater increase in mean systolic blood pressure. The distance between these two groups gradually increased. Individuals with a family history of hypertension had an average initial diastolic blood pressure of 74.795, which

was higher than the average starting value of 74.127 for those without a family history of hypertension. This difference was not statistically significant (P-value = 0.574). The difference in the average slope adjusted for diastolic blood pressure for people with a history of hypertension in the family (0.160) and people without a family history of blood pressure in the family (0.305) was significant (P-value = 0.000). The covariance between the initial value and the slope of the adjusted line for diastolic blood pressure was positive in the group with a family history of hypertension. In other words, diabetics who started the research with greater diastolic blood pressure also had higher average growth. In people who did not have a history of hypertension in the family, according to the negative covariance between the initial value of diastolic blood pressure and the slope of the fitted line, people who had higher blood pressure during the study had a lower growth trend in their diastolic blood pressure.

Conclusion: Patients with diabetes should pay close attention for a family history of hypertension. These people should have regular blood pressure monitoring and management.

Echocardiographic Estimation of Ventricular and Systolic Elastance in Fetuses during Mid-Gestation compared to Neonates

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Background: Ventricular and arterial elastances provide indices of myocardial contractility and arterial afterload. The ratio of ventricular to arterial elastance (Ea/Ees) known as ventricular-arterial coupling indicates the interaction between the arterial and ventricular systems that shows the cardiovascular performance. Noninvasive measurement of these parameters is possible in the fetus by accepting some assumptions.

Method: In a prospective study, the echocardiographic derived arterial and ventricular elastances were measured in 67 mid-gestational age fetuses and in 43 neonates. Assumptions were used in Doppler pre-ejection period (PEP) and

ejection time (ET) in addition to the blood pressure in the fetus population. Data were analyzed using appropriate statistical t-tests including. P-values of less than 0.05 were significant.

Result: The mean and standard deviation of arterial and ventricular elastance (Ea and Ees) in fetuses were 84.4±20.04mmHg/ml and 88.5±20.49mmHg/ml respectively. These values were much lower for the neonates 12.6±2.88mmHg/ml and 15.07±2.89mmHg/ml respectively, P-value of <0.001. The mean of ventricular-arterial coupling values was close to 1 in both groups however with significant statistical differences between the fetuses and neonates, 0.96±0.14 vs 0.84±0.13 respectively and P-value of less than 0.001.

Conclusion: With the acceptance of some assumptions in Doppler PEP, ET and blood pressure, noninvasive measurement of Ea, Ees and Ea/Ees ratio is possible in the fetus population as indices of cardiovascular performance. The ventricular elastance is several times greater in the fetus compared to the neonate in a harmony of values seen in the pediatric and adult populations as a downward trend with aging.

Keywords: Echocardiography; End-systolic elastance; Arterial elastance; Ventriculo-arterial coupling

Mediterranean diet as a strategy to reduce the risk of cardiovascular diseases: a review articles

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Introduction Cardiovascular disease (CVD) is one of the leading causes of death worldwide. Diet plays an important role in the prevention and management of CVD. The Mediterranean diet (MedDiet) is a traditional dietary pattern that is prevalent in Mediterranean countries. This diet emphasizes the consumption of abundant fruits, vegetables, whole grains, nuts and legumes, olive oil, and fish, and limits the consumption of red meat, high-fat dairy products, and processed foods.

Methods : This narrative review was conducted in PubMed, Scopus, Cochrane and Web of Science databases. The reviewed studies included randomized con-

trolled trials (RCTs). In this study, studies that evaluated the effects of the Mediterranean diet on CVD were reviewed.

Results: In total, 25 studies were reviewed that included over 220,000 participants. The results showed that following a Mediterranean diet is associated with a reduced risk of death from CVD, stroke, coronary heart disease (CHD), and other CVD outcomes.

Discussion: The evidence from this systematic review suggests that the Mediterranean diet is a healthy dietary pattern that can help to reduce the risk of CVD. This diet does so by reducing CVD risk factors such as blood pressure, blood cholesterol, blood sugar, and inflammation.

Discussion and Conclusion: The Mediterranean diet is a promising therapeutic and preventive option for CVD. More studies are needed to evaluate the long-term effects of this diet on CVD.

Recommendation: Based on the results of this systematic review, it is recommended that the Mediterranean diet be considered as a healthy dietary pattern for the prevention and management of CVD.

Here is a more concise version: The Mediterranean diet is a healthy dietary pattern that is associated with a reduced risk of CVD. This diet emphasizes the consumption of fruits, vegetables, whole grains, nuts and legumes, olive oil, and fish, and limits the consumption of red meat, high-fat dairy products, and processed foods.

Keywords: Mediterranean Diet, Cardiovascular, Health

Geometric Framework for Nutrition in Cardiovascular Disease

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Introduction: Geometric Framework for Nutrition (GFN) is a new methodology of interpreting the ways in which nutrients, and non-nutritive compounds of a food in a diet influence disease and health. Addressing the potential mechanisms of food components affected cardiovascular biomarkers is the aim of this review.

Methods: The key words and phrases such as Nutrition therapy, Cardiovascular Disease, Plant-Based Diets, Mediterranean diet, Vegetarians, Hypertriglyceridemic Waist, LDL Cholesterol, Cardiometabolic Risk Factors were systematically reviewed in the most recent scientific articles in electronic databases and books between the years 2015and 2023

Results: Controlling Calorie Intake; Monitoring macronutrient distribution; Modifying micronutrients, phytochemicals, and metabolites of food components; Considering Chemicals formed during cooking process and end products of intestinal bacterial metabolism; Detecting additives, microbial toxins , contaminants, natural toxins, and functional ingredient foods may influence Inflammation, Oxidative Stress, and Endothelial Dysfunction related to CVD. These ingredients may also impact on Gut Microbiome, Nutrigenomics, and Genetic Stability. Determining whether the benefits/risks of foods are due to a single- or a combination- of the dietary components remains challenging. Food components have a deep impact on appetite, growth, reproduction, aging, cardio-metabolic outcomes,, obesity, immune function, and gut microbiota. Avoiding Pro-atherogenic Compounds, adhering to a Specific Plant-Based Diets and Lifestyle Programs is effective in lowering risk of CVD and associated risk factors.

Conclusion: The portray of the GFN and its multiple benefits for CVD allow Nutritionist/Dietitian to pursue proper dietary intervention and to design optimal dietary plan based on both food quantity and food quality.

Keywords: Hypertriglyceridemic Waist, LDL Cholesterol, Cardiometabolic Risk Factors, Nutrition Therapy.

The effect of preoperative education on the anxiety of patients who are candidates for Coronary Artery Bypass Grafting (CABG) surgery

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Introduction: The most common surgical approach for patients with Coronary Artery Disease (CAD) is Coronary Artery Bypass Grafting (CABG) surgery. Anticipation of heart surgery, hospitalization, fear of death, and generally fear of the unknown contribute to anxiety in patients. This study aimed to investigate the impact of preoperative education on the anxiety of candidates for CABG surgery.

Methods: In this review study, English keywords including "Preoperative education, Anxiety, Coronary Artery Bypass Graft" were searched in PubMed and Google Scholar to find English articles, and similar Persian keywords were

searched in Magiran to find Persian articles (from 2013 to 2023). In the initial search, a total of 696 articles from four databases were found. After checking the titles and abstracts of the found articles and removing duplicates, 37 articles were selected and included in the study.

Results: This review study showed that patients experience high levels of anxiety before CABG surgery. In most studies, a significant correlation was observed between preoperative education and the reduction of patients' anxiety levels. Various educational methods, including video, written, and verbal instructions, are effective in reducing anxiety. Factors such as listening to music, spiritual care, social level, and income level can also be influential in reducing anxiety levels and postoperative pain intensity.

Discussion and Conclusion: The results obtained from this study demonstrated that preoperative education reduces anxiety levels in patients and has a positive impact on physiological variables. Therefore, comprehensive planning for various forms of educational interventions before surgery is recommended to reduce anxiety in candidates for CABG surgery.

Keywords: Preoperative education, Anxiety, Coronary Artery Bypass Graft

Factors that increasing medication adherence in Iranian patients with cardiovascular diseases

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Introduction: Cardiovascular diseases (CVD) are the main reason of death in Iran. One of the ways to control CVDs is medication adherence (MA). There are different factors that affect MA, so our purpose was determining of factors that increase MA.

Material and Methods: In this review, we searched online databases such as: PubMed, Scopus, Web of Science, Google Scholar, DOAG, SID, Noor Mags, Magiran for studies that evaluate MA and factors that have increasing effect on it. We include articles in English and Persian, available in full text that published between 2014 and 2023.

Result: 16 articles selected in this study. Most studies have reported that high

Medication Adherence is approximately 40 %. Our review findings indicate that MA increasing factors such as younger age, higher education level, higher level of spouse's education, higher level of income, living with family, being married, living in villages, being retired, lower New York Heart Association class, ejection fraction (EF) >40%, high awareness of disease, higher health literacy, low duration of disease, supplemental insurance, follow up visits, being a never smoker, having easy access to healthcare services, better self-efficacy, family history of coronary artery disease, regular physical activity, history of hyperlipidemia, HF with preserved EF, being familiar with social media, history of stenting, having higher perceived risk of hypertension-related complications, lower mean treatment duration, social support, history of hospitalization.

Discussion and Conclusion: Based on the present study it can be concluded that medication adherence in cardiovascular diseases in Iranian patients is not very high, so enhancing improvement factors including awareness of cardiovascular diseases and treatment and social support by the governance and medical services system is essential.

Key words: Medication Adherence, Cardiovascular disease, Increasing factor, Iran

Prevention of deep venous thrombosis(DVT) using the device SCD (Sequential compression device)

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Introduction: Prevention of deep venous thrombosis(DVT) it is the blood clot inside the veins, blood clots in the veins often occur in the legs, but sometimes it may involve other parts of the body, including the arms. anyway, medicine, special socks and use of SCD device are among the common treatments of this disease.

Material and Methods: search for materials published in years 1401-1402 in the scientific sites of Elsevier, Pub med, Google scholar was carried out of the key words of SCD.in the next step, in order to search for more sources and related articles obtained in the first step, it was also studied.

Results: the formation of blood clots occurs in the deep veins of the leg, pelvis, abdomen, and sometimes in the arm veins.one of the most important risks of DVT

is surgery. In total, after 25% of general surgeries and 50% of knee and hip surgeries, there is a possibility of DVT, which can be prevented by prescribing blood thinners before and after surgery and applying pressure on the legs. Therefore, the risk of DVT can be reduced by using the SCD device.

Discussion and Conclusion: mechanical compression, including the use of an SCD therapeutic device, is effective. This method is effective in preventing and treating deep vein thrombosis. Thrombosis prophylaxis in at- risk patients can reduce the risk of venous thromboembolism(VTE) by 30-65%. In addition, such a method is cost-effective and has very few complications related to bleeding.

Keywords: DVT, SCD, mechanical compression

The role of health education in managing the nutritional behavior in offspring of patient with high blood pressure and diabetes - a theory-based intervention based on the Trans-Theoretical Model.

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Introduction: Healthy diet is one of the main health factors in diabetic patients; the aim of this study The Effect of educational program based on Trans Theoretical Model in nutriment improvement among the offspring of hypertension and diabetic in Firouzabad, Fars province, Iran.

Materials and Methods: This is a Quasi-experiments study. This study intends on 180 offspring of hypertension and diabetic patients (all of the participating in the design and education of at least one of their parents had a history of hypertension or diabetes) who were undercover of rural health centers of Firozabad city Fars province, Iran. Educational intervention performed in the experimental group by three sessions based on Trans Theoretical Model**.** The questionnaire was filled up with participants

in the control and experimental group before and six months of the intervention. The data were analyzed by SPSS 18, Chi 2, Mann Whitney, Fischer's exact test a Monte Carlo simulation, Wilcoxon and co-variance analysis were performed.

Results: The mean age of the subjects in the control group was 41.43 ± 17.57 and 41.65 ± 15.85 in the control group. In the experimental group, 40.44% of male participants and 59.56% of the participants were female, and in the control group, 53.34% of the participants were men and the remaining 46.66% were women. There was a significant relationship between education level and the stages of behavior changes; however, this relationship was not observed between stages of behavior change and the age. Evaluation of change stages before intervention showed that high percentage of patients, 83.33% in the test group and 72.22% in the control group, were in the pre-action stage (pre-contemplation, contemplation, preparation). After an intervention, there was a significant difference between these two groups, in a way that most of the samples in the test group were in action or maintaining stages (82.22%)

Discussion and Conclusion: Application of Trans Theoretical Model-based educational intervention was successful in improving the diet of hypertension and diabetic patients' children. Therefore, the design and implementation of similar interventions in risk-exposed groups seem necessary.

Keywords: Hypertension, Diabetes Mellitus, Nutritional Sciences, Health Education.

Advantages of endoscopic coronary artery bypass surgery

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Introduction: Endoscopic coronary artery bypass graft surgery (ENDO-CABG) is used to treat coronary heart disease (CHD), although traditional coronary artery bypass grafting (CABG) remains the classic treatment. The purpose of this study was to investigate the benefits of endoscopic coronary artery bypass surgery for the treatment of patients with coronary heart disease.

Methods: In this review study, English keywords including "Advantages, Endoscopy, Coronary Artery Bypass Graft" were searched in PubMed and Google Scholar to find

English articles, and similar Persian keywords were searched in Magiran and SID to find Persian articles (from 2013 to 2023). In the initial search, a total of 8458 articles from four databases were found, and after checking the titles and abstracts of the found articles and removing duplicates, 11 articles were selected and included in the study.

Results: The results of this review study showed that we can consider EN-DO-CABG as a safe and effective method for the treatment of CHD. This method has several advantages, which include: no need for sternotomy and, a reduction in the occurrence of adverse neurological and vascular outcomes up to 12 months after the operation, such as MACCE cerebrovascular blood clot, transient ischemic attack, epilepsy, and delirium compared to traditional CABG; Also, this surgery reduces the rate of renal failure that requires hemofiltration, wound infection, and stroke during follow-up. Another advantage of this surgery is the reduction of mortality in patients and the increase in the percentage of the primary vascular graft. On the other hand, ENDO-CABG also has some disadvantages, such as increased average operation time, high complexity, high cost, and the possibility of technical and logistical problems during the operation, which have hindered its popularity compared to traditional CABG.

Discussion and Conclusion: Due to the many advantages of endoscopic coronary artery bypass surgery, in addition to performing ENDO-CABG, we can also use this surgical method for patients to repair heart structural conditions, such as mitral valvuloplasty and closure of atrial wall defects. This surgery is safe and effective with excellent outcomes, especially when performed frequently by an experienced team. The main advantages of this surgery are minimized surgical trauma and subsequent reduction of postoperative healing time.

Keywords: Advantages, Endoscopy, Coronary Artery Bypass Graft

Postoperative Pain Management in Patients Undergoing Coronary Artery Bypass Grafting (CABG)

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Introduction: Coronary Artery Bypass Grafting (CABG) surgery is an effective

and extensive procedure for coronary artery reconstruction, however, there are some long-term postoperative complications that patients may suffer from, which is one of the most common problems in patients undergoing CABG surgery, being postoperative pain. This study aims to investigate postoperative pain management methods in candidates for CABG surgery.

Methods: In this review study, English keywords included "Management, Postoperative Pain, Coronary Artery Bypass Graft" were searched in PubMed and Google Scholar to find English articles and similar Persian keywords were searched in Google Scholar, Magiran, and SID to find Persian articles (from 2013 to 2023). In the initial search, a total of 60173 articles from four databases were found, and after checking the titles and abstracts of the found articles and removing duplicates, 30 articles were selected and included in the study.

Results: The results of this review study indicated that patients undergoing CABG surgery complained of postoperative pain a lot; Therefore, proper and effective pain management techniques should be employed. Among the approaches considered are simple and cost-effective methods such as self-management, superficial stroking massage, and cold therapy, as well as more expensive methods like Class IV laser therapy, lidocaine gel, and opioid substances. Additionally, medications such as ketorolac and paracetamol can be utilized, and according to the results of the studies; ketorolac was more effective than paracetamol in reducing postoperative pain in patients undergoing CABG surgery.

Discussion and Conclusion: Given the high prevalence of postoperative pain in patients undergoing CABG surgery, it is recommended to implement the necessary measures for pain reduction. These measures include the use of more effective medications, the integration of cost-effective methods as complementary approaches alongside pharmacological interventions, preoperative education for patients, and the adoption of non-pharmacological methods in these individuals.

Keywords: Management, Postoperative Pain, Coronary Artery Bypass Graft

کنگره‌های دوره‌های پیشین در یک نگاه
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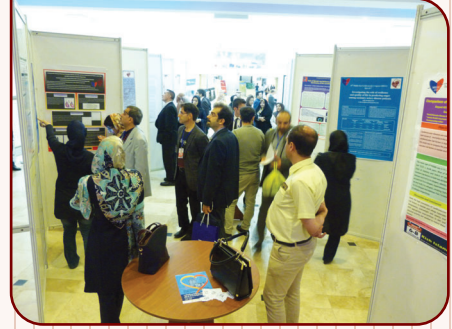
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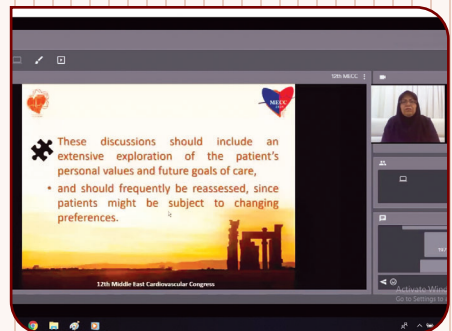
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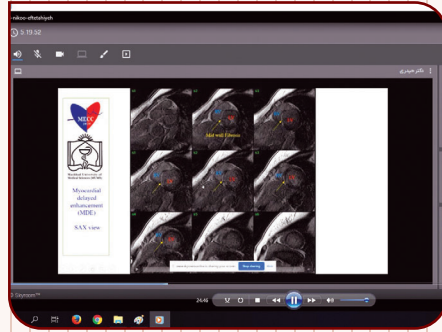
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