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CARDIOVASCULAR RESEARCH PROVE JOURNAL

(CVREP)

CARDIOVASCULAR RESEARCH PROVE Journal
"CVREP" Journal

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"CVREP" Journal is the official Journal of **CardioAlex Research, Education & Prevention foundation**. It is a peer-reviewed journal, engaged in publishing high quality material on all aspects of Cardiovascular Medicine. It includes updates on cardiology, information to junior doctors, review articles, abstracts, articles related to research findings and technical evaluations. It also provides a forum for the exchange of information in all fields of cardiology.

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SECTION (1): ABSTRACTS PRESENTED @ CARDIOALEX.19

Are Well-Developed Coronary Collaterals Functionally Sufficient for Chronic Total Occlusion Ischemic Territory Perfusion?

Ayman Elsayed Tantawy[1 2], Satoru Sumitsuji[1], Amro Mohamed Mostafa[1], Hideaki kaneda[1]

OBJECTIVE:
To examine whether the "well-collateralized chronic total occlusion (CTO) territories" are ischemic or not, using fractional flow reserve (FFR) measurement across the CTO segment.

METHODS AND RESULTS:
Among CTO cases done between May 2008 until May 2014, we selected 19 cases that best showed well-developed coronary collateral channels (CCC) of > 1.5-2mm in size. After crossing CTO segment with dedicated wires, a low profile small balloon dilatation was done only in a way that permits passage of FFR pressure wire while maintaining a severe stenosis into CTO segment. After successful recanalization of CTO lesion, FFR measurement was then repeated and comparison between pre-and post- FFR was performed.

Among those 19 patients, 14 were males (73.7%), 5 were females (26.3%). The mean age was 66.8±9.3. Target CTO lesion was LAD in 13 patients (68.4%) and RCA in 6 patients (31.6%). The CTO lesion was approached antegradely in 16 patients (84.2%) and retrogradely in 3 patients (15.8%). Pre-stenting measurement of FFR showed mean FFR value of 0.55±0.09 with a minimum value of 0.38 and the maximum value of 0.69. Post-stenting FFR showed mean FFR value of 0.89±0.077 with a minimum value of 0.74 and a maximum value of 1.01 ($P < 0.001$).

CONCLUSIONS:
Our study showed that, even the well-developed coronary collateral channels do not provide sufficient perfusion for CTO ischemic territory, showing that may be all CTO cases do benefit from revascularization.

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Assessment of Coronary Artery Disease Severity in Hepatitis C Patients at Suez Canal University Hospital Cardiac Catheterization Laboratory

Mahmoud Mohamed moussa[1], Hesham Hegazy Ali[2], Mohamed Ahmed Oraby[2], Ahmed Tag Eldeen Abdellah[1]

BACKGROUND:

Chronic hepatitis C virus (HCV) infection and coronary artery disease (CAD) are major health problems causing significant worldwide morbidity and mortality. Chronic HCV infection induces a pro-inflammatory state and promotes atherosclerosis. We conducted this study to assess the association between HCV infection and severity of coronary artery disease.

METHODS:

The study was a cross sectional study including 225 randomly selected patients: 150 HCV positive patients (study group) and 75 age and gender matched HCV negative individuals (control group). Both groups were referred to undergo diagnostic coronary angiography. HCV markers and HCV PCR were done to all patients. Gensini score was used to assess the severity of CAD.

RESULTS:

Age and gender distribution were comparable in both groups. Likewise, the prevalence of smoking (56% versus {vs} 61.3%), diabetes mellitus (49.3% vs 46.7%) and hypertension (66.7% vs 65.3%) were comparable in the study and control groups, respectively.

However, the lipid profile was different in both groups, the cholesterol level was 186±22 mg/dl vs 205±29 mg/dl, P < 0.018 in the study group vs the control group, respectively. The triglycerides level was 122±27 mg/dl vs 153±34 mg/dl, P< 0.001, in the study group vs the control group, respectively.

Nevertheless, HDL level was nearly similar in both groups, 41±12 mg/dl vs 38±14 mg/dl, P< 0.06, in the study vs the control group, respectively. Likewise, LDL level was 131±25 mg/dl vs 141±31 mg/dl, P< 0.08, in the study group versus the control group, respectively.

The study group had more severe CAD than the control group using Gensini score (40 versus {vs} 25.5, P< 0.001). The study group had higher incidence of ST elevation myocardial infarction (STEMI) than the control group (33 % vs 24%, P< 0.05). There was significant difference between both groups regarding presence of ≥ 1 totally occluded coronary artery (24% in the study group vs 12% in the control group, P< 0.04). Three vessels CAD was more common in the study group than in the control group (40% vs 18% respectively, P< 0.05). There was a mild statistically significant positive correlation between Gensini score and HCV PCR, correlation coefficient 0.24, P < 0.001.

CONCLUSIONS:

In randomly selected patients referred to undergo coronary angiography, CAD severity assessed by Gensini score, incidence of STEMI and presence of totally occluded coronary arteries are significantly higher in patients with chronic HCV infection than in HCV negative patients. More large scale studies are needed to find the exact mechanism by which HCV is associated with or contribute to the development of CAD.

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Evidence of Platelet Dysfunction in Congenital Cyanotic Heart Disease: Relevance to Palliative Systemic-Pulmonary Shunt and Haemostatic Parameters

Fatma Alzahraa Mostafa[1], Hala Agha[1], Hala Gaber[2], Samar Alsoda[1]

BACKGROUND:

Abnormal platelet function has been hypothesized to play a role in the haemostatic abnormalities in cyanotic congenital heart disease (CCHD) patients. Blood platelets in patients with CCHD were occasionally characterized by significantly enhanced expression of P-selectin in resting circulating platelets as well as their augmented activation in response to stimulating agents.

OBJECTIVE:

To study the platelet functions in patients with CCHD by determination of P-selectin expression and the GPIIIa polymorphism and to correlate these findings with other clinical, radiological, and laboratory parameters in these patients.

METHODS:

This study included 47 patients, with CCHD with decreased pulmonary blood flow, attending the Pediatric Cardiology Clinic in the New Pediatric Hospital, Cairo University.

They were divided into two groups:

Group I: 31 patients with congenital cyanotic heart disease before cardiac surgery (23 males,8 females age range 1m-10y). Group II: 16 patients with congenital cyanotic heart disease 3-6 months after palliative or corrective cardio surgery (11males,8 females, age range 2m-6y).

Group III: 30 age and sex matched normal children were included in the study as control group.

Full history taking with emphasis on thrombosis or embolism.General and local cardiac examination.Chest X-ray.Echocardiography: 2D,M mode and Doppler echocardiography. Pulse oxymetry. Flow-cytometric evaluation of platelet activation by P-selectin expressionP-selectin expression was estimated using monoclonal antibody.Typing of GPIIIa gene polymorphism

RESULTS:

There is statistically significant higher expression of P-selectin in group I and II compared with controls with significantly higher expression in young patients below 3 years. Significant higher levels of P selectine in A2A2 patients than controls with significantly higher levels in positive phenotype patients compared with positive phenotype controls. Significant negative correlation between oxygen saturation and P selectin expression was found in patients.

CONCLUSION:

Platelet activation may be an important contributor in the high thrombotic liability in CCHD patients and may be attributed in part to genetic factors.The use of platelet function or activity inhibitor in these patients needs further studies to be established.

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Reinterventions After Repair of Tetralogy of Fallot

Mohsen Saber Mohammed Ahmed[1], Mohamed-Adel Elgamel[2], Ayman Abdelgaffar[3], Khaled Abdelaal[4], Abdelrahman Elsayed[5], Zohair Youssef Alhalees[6]

BACKGROUND:

Early results of repair of tetralogy of Fallot (TOF) were excellent. However, with long term follow up they may need repeated reinterventions

OBJECTIVE:

To highlight the indications for reinterventions after TOF repair and how to decrease its incidence.

METHODS:

A retrospective review of all cases of TOF repaired between1985 to 2013 in our institution. A total of 557 patients were included. patients were classified into two groups; Group1: who required transannular patch(TAP) and Group2: who had pulmonary valve sparing (PVS). The two groups were compared as regards to the need to reoperation or interventions after repair.

RESULTS:

Reinterventions or reoperations were done for one third (35.7%) of our all cohort with higher rate of reinterventions on TAP group 41.6% vs 16.4% in PVS; p<0.001) with shorter freedom time (p<0.001). Cause for intervention in our series were: Reintervention for severe pulmonary regurgitation (PR) was 11.5% with 14 % on TAP group versus 2.5 % on PVS with significant difference p < 0.001. Reintervention for right ventricular out flow obstruction (RVOTO) was 10.8% with 11.7% on TAP group versus 7.40% on PVS group with no significant difference P = 0.118. Reintervention for LPA stenosis was 18% with 21.6% on TAP group versus 5% on PVS group with significant difference P < 0.001. Reintervention for RPA stenosis was 8.1% with 10.1% on TAP group versus 0.80% on PVS group with significant difference p < 0.001. Reinterventions for tricuspid regurgitation (TR) was 5.7% with 6.2% on TAP group versus 4.1% on PVS group with no significant difference p=0.269. Reintervention for VSD was 2% with 1.80% on TAP group versus 2.50% on the PVS with no significant difference p = 0.440. Reintervention for endocarditis was 0.5% with 0.5% on TAP group and 0.8 % on the PVS group with no significant difference p = 0.521. Reintervention for arrhythmia was 1.4% with 1.6% on TAP group versus 0.8% on the PVS group with no significant difference p =0.453. Late heart block managed by pace maker was 0.9% with 0.9% on the TAP group versus 0.8% on the PVS group. with no significant difference p = 0.702

CONCLUSION:

Most common indications for reinterventions in our series were PR, RVOTO and pulmonary artery branch stenosis. PVS has a protective effect on long term RV geometry and function with a lower rate reinterventions.

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Role of Strain Echocardiography in The Assessment for Asymptomatic Aortic Valve Stenosis

Ahmed Haggag[1], Mohamed Ayman[1], Mohamed Sadaka[1], Sherif Wagdi[1]

BACKGROUND:

Calcific aortic stenosis (AS) is the most common form of valvular heart disease in developed countries and now regarded as a growing health problem.

The natural history of aortic stenosis involves a prolonged latent asymptomatic period, during which progressive worsening of left ventricular (LV) outflow obstruction leads to hypertrophic changes in the left ventricle.

Classic symptoms of aortic stenosis include dyspnea and other symptoms of heart failure, angina and syncope. The onset of these classic symptoms indicates hemodynamically significant aortic stenosis and is a critical point for making management decisions.

Doppler echocardiography is the recommended initial test for patients with classic symptoms of aortic stenosis. It is helpful for estimating aortic valve area, peak and mean transvalvular gradients, and maximum aortic velocity.

Speckle-tracking echocardiography is a sophisticated non-invasive new echocardiographic technique that bypasses the limitations of Doppler techniques, provides a comprehensive analysis of global and regional myocardial deformation evaluated in all spatial directions.

OBJECTIVE:

To evaluate the role of strain echocardiography in the assessment of left ventricular systolic function in patients with severe asymptomatic aortic valve stenosis.

PATIENTS AND METHODS:

This study included 56 patients divided into two groups, patients' group which included 36 patients with isolated senile degenerative asymptomatic severe aortic valve stenosis and the control group which included 20 normal healthy age and sex matched subjects.

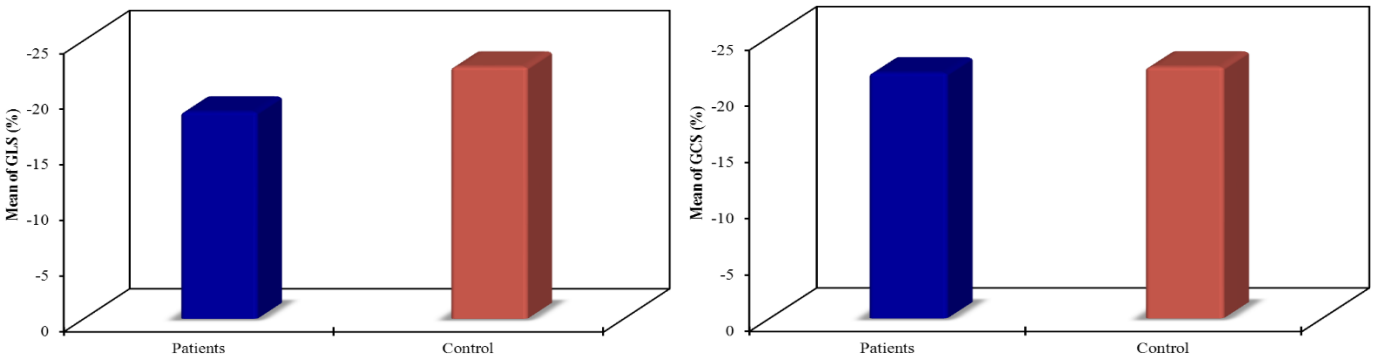
All subjects were evaluated by history taking, clinical examination, routine laboratory investigations and a 12-lead ECG, conventional 2D echocardiography and the global longitudinal and circumferential strain were calculated.

All patients were followed up clinically and the development of any symptom of the cardinal symptoms of aortic stenosis was recorded.

RESULTS:

		Total (n=56)	Patients (n=36)	Control (n=20)	P value
Age (years)			73.31 ± 4.39	75.15 ± 4.57	0.143
Sex	Males		19	11	
	Females		17	9	
Risk Factors	DM		20 (55.6%)	10 (50%)	0.690
	HTN		15 (41.7%)	10 (50%)	0.548
	Smoking		14 (38.9%)	10 (50%)	0.773
	Dyslipidemia		19 (52.8%)	10 (50%)	0.842
Clinical examination	Systolic BP (mmHg)		127.78 ± 25.31	133.0 ± 29.93	0.491
	Diastolic BP (mmHg)		81.39 ± 16.24	85.0 ± 15.39	0.420
	HR (bpm)		77.36 ± 11.05	78.40 ± 12.25	0.747
Laboratory	Hb (g/dl)		12.81 ± 0.92	12.55 ± 0.51	0.178
	Creatinine (mg/dl)		0.95 ± 0.08	0.98 ± 0.05	0.107
Ejection Fraction (%)			57.14 ± 4.24	59.65 ± 6.11	0.113

Results are represented as number (%) or mean ± standard deviation, DM = Diabetes Mellitus, HTN = Hypertension, BP = Blood Pressure, HR = Heart Rate, Hb = Hemoglobin, ACEIs = Angiotensin converting enzyme inhibitors, ARBs = Angiotensin receptor blockers, bpm = beats per minute, * significant P value < 0.05



By comparing the global longitudinal strain (GLS) in the two groups, the mean GLS in the patient group was -18.61 ± 2.03 % and in the control group was -22.65 ± 1.23 % with a statistically significant difference. ($p<0.001$)

The mean global circumferential strain (GCS) was -21.83 ± 1.32 % in the patient group and in the control group was -22.35 ± 1.04 % with no statistically significant ($p = 0.138$).

CONCLUSION:

GLS can be used for the assessment of the subclinical left ventricular systolic dysfunction in patients with asymptomatic aortic valve stenosis.

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Study of The Relation of Omentin-1 With Severity of Coronary Lesions in Patients Presented with Non-Stemi

Ahmed Alaarag[1], Ayman Elsaeed[2], Salma Olwy Nassar[3], Reham Lotfy[4]

OBJECTIVE:

To examine the association between serum omentin-1 and the severity, and complexity of coronary angiography in non STEMI patients.

METHOD AND RESULTS:

We performed a single-center study on Non- STEMI patients which are managed by invasive strategy in cardiology department Tanta University hospital from January 2018 to July 2018 and the study populations are divided into the following groups:

Group 1 (control group) which contains the following subgroups:

1A: Healthy volunteers (non-ischemic, non-diabetics volunteers) with normal MBI.

1B: (non-ischemic, diabetics volunteers) with increased BMI (obese).

1C: (obese volunteers) who are non-ischemic, non-diabetics.

NB: exercise stress test was used to exclude ischemia

Group 2 (Non-STEMI group) in whom early invasive strategy was chosen as the line of treatment they are further divided into 3 sub-groups

2A: (Non-STEMI patients who are non-obese, non-diabetic)

2B: ((Non-STEMI patients who are diabetic-non-obese)

2C: (Non-STEMI patients who are obese, non-diabetic).

Serum Omentine-1 was measured in all sub-groups and the severity of coronary lesions was evaluated in group 2 sub-groups using syntax score calculator

RESULTS:

Serum Omentine-1 has significantly decreased in all patients with non-STIMI compared to control groups and its level negatively correlated to the severity of coronary lesion with cut of value of 19 (ng/ml) can predicts multi-vessel disease and high syntax score (>32) with sensitivity of 95% and specificity of 87.5

CONCLUSION:

Omentine-1 level has a linear incremental association with CAD and. The serum omentin-1 level is also independently correlated with disease severity number of affected vessels. Thus, serum omentin-1 measurement could be used to improve cardiovascular risk assessment in patients with non-STEMI.

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The Importance of Anatomical Characteristics of Aortic Arch in Aortic Coarctation for The Prognosis After Its Treatment

Mohamaad Eltahlawi*

BACKGROUND:

Coarctation of the aorta accounts for 6·8% of congenital heart disease, with an incidence of one in 12 000 live births [1]. Coarctation is a heterogeneous lesion with variability in the degree and site of obstruction. This anatomical variation has an embryological reflection. Up till now, there is no sufficient data regarding the effect of this anatomical component of coarctation of the aorta on the short and long term prognosis after its treatment (surgical or percutaneous angioplasty). This relationship has to be clarified.

OBJECTIVE:

We aim to demonstrate the relationship between the anatomical features of aortic arch in case of aortic coarctation and the prognosis on short and long term after its surgical or percutaneous repair.

PATIENTS AND METHODS:

We conducted a retrospective study that continued prospectively till the end of the work. The children with aortic coarctation who were repaired surgically or percutaneously by catheter based angioplasty or stenting in the period between 11/2014 and 06/2017 were enrolled.

All the descriptive data about this coarctation was collected (echocardiography, CT scan and/or MRI). Anatomical analysis of these data with its embryological background was done.

We have then classified these patient according to their anatomical features of aortic arch.

Follow-up data on short and long term post treatment of each anatomical class was gathered.

Statistical analysis of these data was held to find out the relationship between these anatomical variation and the follow-up results.

RESULTS:

Thirty cases were en rolled in this study. 15 cases were treated surgically. the other 15 cases were treated interventionally using ballon or stent. The mean age ± SD was17±12.2. the mean systolic blood pressure ±SD pre-treatment was180 ±25. 16 cases have hypoplastic aortic arch.13 cases have abnormal aortic arch anatomy (5 have common trunck of innominate and left common carotid,2 cases have hypoplastic left displaced left subclavian artery, 3 cases have separate right common carotid trunck from aortic arch, 3cases have gothic arch with very close aortic arch branches. We found that all cases with hypoplastic aortic arch had recurrent coarctation 6-9m after management. Cases with abnormal arch anatomy had worse prognosis regarding persistence of hypertension. There was negative correlation between the distance (left common carotid and left subclavian arteries) and the duration before recoarctation.

CONCLUSION:

Arch anatomy may affect the clinical prognosis of coarctation. Abnormal arch anatomy has worse prognosis. The less the distance between left subclavian and left common carotid, the better the prognosis and less incidence of coarctation.

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The Relation Between Serum Chemerin Level and Atherosclerosis in Type II Diabetic Patients with and Without Coronary Artery Disease

Ahmed El Damanhory[1], Islam Galal[1]

BACKGROUND:

Adiposity is associated with type II diabetes mellitus, and atherosclerotic coronary artery disease. Adipokines are responsible for, glucose intolerance and atherosclerotic CAD progression. The serum chemerin is one of adipokines and has a role in adipocyte metabolism, and influencing chemerin receptor.

AIM OF THE WORK:

The aim of the present study is to find out the relation of the serum chemerin level to atherosclerosis in type II diabetic patients with and without coronary artery disease.

PATIENTS AND METHODS:

The study was done in Cardiology department, Faculty of Medicine, Zagazig University. This study included (96) subjects who were classified into three groups: - Group (1): included 32 healthy subjects who served as a control group. -Group (2): included 32 type II diabetic patients without coronary heart disease. - Group (3): included 32 type II diabetic patients with coronary heart disease. All patients were subjected to the following: • Full history, Complete physical and clinical examination. • ECGfor detecting ischemic changes. Echocardiographic assessment of resting wall motion and EF and CT coronary angiography to assess atherosclerotic CAD • Blood samples were analyzed for: 1) Fasting blood glucose level .2) 2 hours postprandial blood glucose level.3) Lipid profile (TC, TG, HDL-C, LDL-C). 4) Liver function tests and Kidney function tests for exclusion criteria.6) Chemerin level was measured using immunosorbent assay (ELISA) kits.

RESULTS:

There was statistically non-significant negative correlation between serum chemerin level and the following parameters (age, BMI, serum creatinine) and there was statistically non-significant positive correlation between serum chemerin level and serum albumin. Moreover, there was statistically significant positive correlation ($P < 0.01$) between serum chemerin level and the following parameters (SBP, DBP, FBS, PPBS, TC, TG, LDL). However, there was statistically significant negative correlation ($P < 0.01$) between serum chemerin level and HDL.Moreover, serum chemerin level is considered as a predictor marker of Coronary artery disease with cut off value = 110.5 ng / dl, Specifity 93 % and Sensitivity 88.2 %.

CONCLUSION:

The serum chemerin is considered as one of the predictors of atherosclerotic CAD in type II diabetes mellitus and lead to early detection and management of CAD.

KEYWORDS:

Chemerin; coronary artery disease; type II diabetes mellitus.

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