

# Journal of Cardiology and Cardiovascular Medicine

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Research Article

Published Date:-2019-08-22 00:00:00

[Role of novel cardiac biomarkers for the diagnosis, risk stratification, and prognostication among patients with heart failure](#)

**Background:** Current guidelines for diagnosis and management of heart failure (HF) rely on clinical findings and natriuretic peptide values, but evidence suggests that recently identified cardiac biomarkers may aid in early detection of HF and improve risk stratification. The aim of this study was to assess the diagnostic and prognostic utility of multiple biomarkers in patients with HF and left ventricular systolic dysfunction (LVSD).

**Methods:** High-sensitivity cardiac troponin I (cTnI), N-terminal pro b-type natriuretic peptide (NT-proBNP), interleukin-6 (IL-6), endothelin-1 (ET-1), pro-matrix metalloproteinase-9 (pMMP-9), and tumor necrosis factor-alpha (TNF-?) were measured using single-molecule counting technology in 200 patients with varying stages of HF. Plasma detection with cross-sectional associations of biomarkers across all HF stages, and advanced-therapy and transplant-free survival were assessed using multivariate analysis and Cox regression analyses, respectively.

**Results:** NTproBNP, pMMP-9, IL-6 were elevated in early, asymptomatic stages of HF, and increased with HF severity. Higher circulating levels of combined IL-6, NTproBNP, and cTnI predicted significantly worse survival at 1500-day follow-up. Cox regression analysis adjusted for ACC/AHA HF stages demonstrated that a higher concentration of IL-6 and cTnI conferred greater risks in terms of time to death, implantation of left ventricular assist device (LVAD), or heart transplantation.

**Conclusion:** Biomarkers of inflammation, LV remodeling, and myocardial injury were elevated in HF and increased with HF severity. Patients had a significantly higher risk of serious cardiac events if multiple biomarkers were elevated. These findings support measuring NTproBNP, cTnI and IL-6 among patients with HF and LVSD for diagnostic and prognostic purposes.

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Case Report

Published Date:-2019-08-19 00:00:00

[Late discover of a traumatic cardiac injury: Case report](#)

Blunt chest trauma leads to a wide range of lesions, relatively minor parietal injuries to potentially fatal cardiac lesions, making diagnosis and management difficult. The diagnosis is currently facilitated by imaging, however, these lesions may go unnoticed and be discovered late through complications.

We report the case of a neglected heart wound revealed by a heart failure. This case is notable due to a favourable outcome despite a delay in diagnosis due to a lack of pericardial effusion and the absence of cardiac symptoms, and a long delay from injury to appropriate treatment in the presence of a penetrating cardiac wound deep enough to cause a muscular ventricular septal defect and lacerate the anterior mitral leaflet.

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Review Article

Published Date:-2019-08-09 00:00:00

[Timing of cardiac surgery and other intervention among children with congenital heart disease: A review article](#)

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**Background:** Early diagnosis and improved facilities are necessary for determining the optimal timing of surgery and other interventions in children with congenital heart diseases in Nigeria. This is because late presentation, late diagnosis and delayed surgery can lead to mortality and affect the quality of life among these children.

**Objectives:** This review article is aimed at enumerating the timing of cardiac surgeries and other interventions and to seek if there is any factor associated with the timing of cardiac surgery.

**Methods:** A search on PubMed database, World Health Organization libraries, Google scholar, TRIP database, and reference lists of selected articles on timing of cardiac surgery in children was done. The Cochrane Database of Systematic Reviews was also searched. We noted few data from African setting. Key words such as timing of cardiac surgery; children, congenital heart defect were used.

**Conclusion:** Appropriate timing for cardiac surgery in children with congenital heart disease is very important as late surgical intervention could result in several morbidities and mortality.

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**Research Article**

**Published Date:-2019-07-31 01:00:00**

[P wave dispersion in patients with premenstrual dysphoric disorder](#)

**Background:** Growing evidence has revealed that fear and anxiety related situations could affect cardiac parameters. P wave dispersion (Pd) is an important index. In the present study, we aimed to evaluate Pd values in patients with premenstrual dysphoric disorder.

**Methods:** The study was composed of twenty-five female patients with premenstrual dysphoric disorder and same number of healthy controls. Pd, Pmin and Pmax values were determined by electrocardiogram (ECG) in the subjects.

**Results:** It was found that patients with premenstrual dysphoric disorder had considerably higher Pmax and Pmin values compared to those of healthy subjects. Pd was also significantly higher in patients with premenstrual dysphoric disorders than that of healthy subjects.

**Conclusion:** Study suggests that patients with premenstrual dysphoric disorder seems to have increased Pd, as can be seen in anxiety and fear related clinical conditions, considering that this group of patients have an increased trend to cardiac abnormalities, particularly cardiac arrhythmias. To access strong conclusion, it is required novel studies with larger samples.

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**Research Article**

**Published Date:-2019-07-31 00:00:00**

[Preclinical stiff heart is a marker of cardiovascular morbimortality in apparently healthy population](#)

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**Background:** The prognostic significance of impaired left ventricular (LV) relaxation and increased LV stiffness as precursor of heart failure with preserved ejection fraction and death is still largely unknown in apparently healthy subjects.

**Methods:** We constituted a cohort of 353 patients with normal ejection fraction (>45%) and no significant heart disease, based on a total of 3,575 consecutive left-sided heart catheterizations performed. We measured peak negative first derivative of LV pressure (-dP/dt) and operating chamber stiffness (?) using a validated equation. Patients were categorized as having: 1) normal diastolic function, 2) isolated relaxation abnormalities (-dP/dt > 1860mm Hg/sec and K <0.025mm Hg/ml), or 3) predominant stiff heart (K ?0.025mm Hg/ml).

**Results:** During a follow-up of at least 5 years, the incidence of the primary composite endpoint (death, major arterial event, heart failure, and arrhythmia) was 23.2% (82 patients). Compared to isolated relaxation abnormalities, predominant stiff heart showed stronger prognostic significance for all events (p=0.002), namely heart failure (HR, 2.9; p=0.0499), cardiac death (HR, 5.8; p=0.03), and heart failure and cardiac death combined (HR, 3.7; p=0.003).

**Conclusion:** In this apparently healthy population referred to our center for cardiac catheterization, the prevalence of diastolic dysfunction was very high. Moreover, predominant stiff heart was a better predictor of cardiovascular outcomes than isolated relaxation abnormalities.

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**Case Report**                      **Published Date:-2019-07-30 00:00:00**

[Severe Infantile Coarctation and Mid Aortic Stenosis in Williams Syndrome](#)

We report a challenging patient with Williams syndrome and severe coarctation of the aorta. As in a few similar cases reported, several surgical and catheter interventions for recoarctation, intrastent intimal proliferation and stenosis of the left sub-clavian artery were required. Aortic patch angioplasty is planned for the future in a grower child.

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**Research Article**                      **Published Date:-2019-07-16 01:00:00**

[Assessment of lipid and hematological profile among blood donors in European Gaza Hospital, Palestine](#)

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**Background:** There is an important shortage of blood in the greatest blood banks worldwide to meet up with requirements for numerous medical interventions. Limited studies have associated regular blood donation to the lowering of lipid function parameters. Assessing the lipid function is a classical method of evaluating an individual's risk for coronary heart disease.

**Objective:** The general goal of the study is to determine lipid and hematological profile among blood donors in European Gaza Hospital, Palestine.

**Materials and Methods:** This study was a case-control study that involved 120 male, 40 of whom were regular blood donors (study group), 40 first time donors and 40 non- donors (control group) aged between 18-60 years. A volume of 5ml venous blood was drawn from each fasting participant into a dry biochemistry screw-capped tube. This was allowed to clot and the serum was used to determine total cholesterol (TC), triglycerides, High-density lipoprotein cholesterol (HDL-C), Low-density lipoprotein cholesterol (LDL-C), while HDL-C/LDL-C and TC/LDL ratio were calculated by using the following formula. Anthropometric parameters (weight, height) of donors were measured using standard protocol. The height (in meter), weight (in kilogram) were used to calculate the body mass index (BMI) using the following formula.  $BMI = \text{weight (kg)} / (\text{height in meter})^2$  and blood was collected from each participant in EDTA (for hematocrit, ESR). Three groups were matched for age and BMI. Data were analyzed using SPSS version 23. Chi-square ( $\chi^2$ ) was used to compare the relationship between categorical variables, ANOVA was used to measure the difference between means. Data were summarized using tables, pie charts, histograms. A P-value  $< 0.05$  was considered to be statistically significant for all tests conducted.

**Results:** The mean total cholesterol ( $169 \pm 10.85$  mg/dl), triglycerides ( $116 \pm 9.73$  mg/dl), HDL ( $54 \pm 2.5$  mg/dl), LDL ( $92 \pm 11.4$  mg/dl), LDL/HDL ratio ( $1.73 \pm 0.25$ ) and TC/HDL ratio ( $3.16 \pm 0.26$ ) were lower in the regular blood donors than the first time donors ( $198 \pm 10.13$ ,  $179 \pm 5.82$ ,  $42.33 \pm 1.6$ ,  $120 \pm 11.2$ ,  $2.85 \pm 0.36$ ,  $4.7 \pm 0.40$ ) and non- donors ( $202 \pm 10.19$ ,  $180 \pm 12.68$ ,  $41.75 \pm 1.4$ ,  $125 \pm 11.7$ ,  $2.99 \pm 0.33$ ,  $4.86 \pm 0.32$ ) respectively and statistically significant ( $P < 0.05$ ). The mean ESR ( $6.63 \pm 0.87$  mm/hr) was lower statistically significant in the regular blood donors than the first time donors ( $7.40 \pm 1.17$ ) and non- donors ( $7.60 \pm 1.48$ ) respectively ( $P < 0.05$ ). The mean HCT ( $42.98 \pm 0.86\%$ ) was lower statistically significant in the regular blood donors than the first time donors ( $44.63 \pm 0.90$ ) and non- donors ( $44.75 \pm 0.74$ ,  $P < 0.05$ ).

**Conclusion:** Regular donors have reduced risk of developing coronary heart disease as reflected by the low total cholesterol, triglycerides, LDL-c, LDL-c/HDL-c ratio, TC/HDL-c ratio and HCT and high HDL. BMI in regular donor was less than the donor for the first time and did not donate, but did not reach the statistical significance. Also in our study regular donors have reduced risk of developing inflammation as reflected by low ESR.

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## Case Report

Published Date:-2019-07-16 00:00:00

[Single Trans apical access for double aortic and mitral valves-in-valves procedures with high risk of thrombus embolism](#)

**Background:** Persistent left atrial thrombus remains a contra indication to transeptal valves in valves procedure. We aimed to perform a double valves in valves replacement through transapical access with cerebral angiography control during the procedure just after implantation. Our case shows the feasibility of this strategy and the management of right ventricle laceration successfully treated after extra corporeal membrane oxygenation implantation and local hemostasis. We reported a feasibility case report of successful double valves in valves implantation through transapical access with 6 months of clinical and computed tomography follow up.

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## Review Article

Published Date:-2019-07-01 00:00:00

[Cardiomyopathies - The special entity of myocarditis and inflammatory cardiomyopathy](#)

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Cardiomyopathy is a heart muscle disease with structural and functional myocardial abnormalities in the absence of coronary artery disease, hypertension, valvular disease, and congenital heart disease. However, it has become clear that diverse etiologies and clinical manifestations (e.g. arrhythmogenic right-ventricular cardiomyopathy/dysplasia (ARVC/D), ARVD/C, left-ventricular non-compaction cardiomyopathy (LVNC)) are responsible for the clinical picture of dilated cardiomyopathy (DCM).

The American Heart Association (AHA) classification grouped cardiomyopathies into genetic, mixed and acquired forms, while the European Society of Cardiology (ESC) classification proposed the subgrouping of each major type of cardiomyopathy into familial or genetic, and nonfamilial or nongenetic, forms [1-4].

Cardiomyopathies are clinically heterogeneous diseases, and there are differences in sex, age of onset, rate of progression, risk of development of overt heart failure and likelihood of sudden death within each cardiomyopathy subtype [5].

Because of the complex etiology and clinical presentation, the diagnostic spectrum in cardiomyopathies spans the entire range of non-invasive and invasive cardiological examination techniques including genetic analysis. The exact verification of certain cardiomyopathies necessitates additional investigations. So, histological, immunohistological and molecular biological/virological investigations of endomyocardial biopsies are the gold standard to confirm the diagnosis of an inflammatory cardiomyopathy (DCMi) [6-10].

This review focuses on myocarditis and inflammatory cardiomyopathies underlying an immune-mediated process or persistent viral infection.

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**Research Article**

**Published Date:-2019-06-27 00:00:00**

[C-reactive protein is associated with ventricular repolarization dispersion among patients with metabolic syndrome](#)

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**Background:** An increasing body of evidence indicates that inflammatory activation profoundly impacts the electrophysiological properties of cardiomyocytes. A marker of systemic inflammation such as C-reactive protein (CRP), is associated with all parameters of the Metabolic syndrome (MetS) and that may result in adverse cardiac events via multiple effects, ultimately resulting in a prolongation of Action Potential duration (APD), and thereby of the QTC (QT corrected) interval on ECG.

**Objective:** We sought to investigate the influence of CRP levels on the prevalence of prolonged QT-dispersion and prolonged Tpeak-Tend –dispersion in the patients with MetS.

**Methods:** We conducted a multicenter observational cross-sectional study. The study population consisted of 200 patients with MetS, stratified in two groups: 103 participants (50 females and 53 males) with level of CRP > 3mg/l, and 97 participants (47 females and 50 males) with level of CRP < 3mg/l, who attended outpatient visits at general cardiology Health Care Clinics during 1 calendar year. For the analysis of the ECG, we performed a manual measurement of the values using a digital caliper with measuring range of 0-150 mm, 0.01 mm resolution, and 0-100 ± 0.02 mm accuracy. QT interval dispersion was obtained by the difference between the maximum and the minimum QT intervals found in the 12-lead electrocardiogram. The Tpeak-Tend interval was obtained from the difference between QT interval and QTpeak interval.

**Results:** Prolonged QTC. dispersion, was found in 51.4% of participants with level of CRP > 3mg/l and in 32.9% of with level of CRP < 3mg/l, the differences were statistically significant. (p=0.004). The results showed that 51.4% participants with level of CRP > 3mg/l had a prolonged Tpeak-Tend interval, and 32.9% of participants with level of CRP < 3mg/l had prolonged Tpeak-Tend interval. Difference were statistically significant. (p=0.04). There were significant association of increased levels of CRP and QTC-dispersion (OR = 2.486, 95% CI 1.389-4.446). There were significant association of increased levels of CRP with Tpeak-Tend Dispersion (OR=2.239, 95% CI 1.262-3.976). Prolonged QTC max. Interval OR=2.236, %CI 1.246-4.014), Prolonged Tp-Te-interval. (OR=2.367, 95% CI 1.327-4.222), also there were significant association of increased levels of CRP with BMI. (OR=1.154, 95% CI 1.095-1.227) and significant association of increased levels of CRP with presence of uncontrolled glycemia. (OR=1.779, 95% CI 1.014-3.12).

**Conclusion:** We think we proved the hypothesis that patients with MetS and high level of CRP have higher prevalence of QT- dispersion and Tpeak-Tend dispersion than patients with MetS and lower level of CRP. These findings have both epidemiological and clinical relevance, also these findings might lend further insight into potential mechanisms by which MetS is associated with adverse cardiac events.

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## Case Report

Published Date:-2019-06-20 00:00:00

[Acute viral myocarditis due to Influenza H3N2 infection resembling an acute coronary syndrome: A case report](#)

A 16-year-old man with history of two weeks-flu like symptoms with intermittent fever. He came to the emergency department with 2 hours-chest pain that radiates to the back and upper extremities. At the admission he was hemodynamically stable with normal blood pressure. The ECG showed sinus rhythm and ST segment elevation of 0.5 mV in all leads (Figure 1A). The cardiac enzymes were elevated (Troponin 12.19 ng/mL and creatine kinase-MB fraction 63.25 U/L). He was admitted to the Intensive Care Unit and later transferred to our medical unit to continue with study protocol. The transthoracic echocardiogram (Figure 1B) reported normal left ventricular systolic function with left ventricular ejection fraction (LVEF) 68%, global longitudinal strain -18%, TAPSE 30 mm, and normal systolic pulmonary artery pressure (30 mmHg).

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## Short Communication

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[Not-motorized Implantable Cardiac Assistance \(NICA\): Hemodynamic concepts and clinical perspectives](#)

The considerable improvements in cardiac support systems technologies have not solved until now the problem of connecting the cardiac assistance devices (CAD) to external energy sources, which makes these Patients at risk of lethal infections and dependent on external batteries with few hours of autonomy. Authors illustrate and discuss the hemodynamic concepts and clinical that underlie the mechanics of the first not-motorized implantable cardiac assistance device (NICA).

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[Impact of the Israeli attacks at 2014 on incidence of STEMI in Gaza](#)

For 51 days, Gaza was pummeled down by the Israeli military in a war known as Operation Protective Edge. During the 50 days (7-7-2014 to 28-8-2014) of the Israeli campaign, 2104 Palestinians were killed, including 253 women (12%) and 495 children (24%). According to the UN, at least 69% of Palestinians killed were civilians. It is estimated that 10,224 Palestinians, including 3,106 children (30%) and 1,970 women (19%) were injured. Preliminary estimates indicate that up to 1,000 of the children injured will have a permanent disability and up to 1,500 orphaned children will need sustained support from the child protection and welfare sectors, 17,200 homes destroyed or severely damaged, 58 hospitals and clinics damaged [1]. Major stressful events are well documented to increase the incidence of acute cardiac events [2]. Cardiovascular complications more than doubled during the FIFA World Cup games of 2006 [3]. After the September 11 terrorist attacks, significantly more patients presented with acute myocardial infarction to the hospitals in Brooklyn [4] and New Jersey [5]. We were able to examine the effects of the Israeli attacks on acute STEMI presentations in Gaza city.

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[Single-centre real world experience of the Mynx Femoral closure device in patients undergoing percutaneous coronary intervention](#)

**Background:** Vascular closure devices are routinely used following femoral artery access to perform percutaneous coronary interventions (PCI). A number of devices are available on the market. We have reported previously on our experience of the Mynx device following diagnostic coronary angiography.

**Aims:** To assess the success and complication rates of the Mynx device used in all-comers in the context of PCI within a single cardiac centre.

**Methods:** Retrospective analysis of data available for patients who underwent PCI via the femoral route and received a Mynx device at a single tertiary centre.

**Results:** The device was used to achieve haemostasis in 113 patients following PCI. In all cases weight-adjusted Heparin as well as dual antiplatelet therapy (Aspirin and Clopidogrel/ Ticagrelor) was administered as per PCI protocol. The device was successfully deployed in 111 cases (98.2%). There were 2 cases of device failure, one due to operator error and the other due to Mynx grip balloon bursting during device deployment. In 15 cases (13.2%; 9 male and 6 female) there were reports of small haematomas (<2cm) or oozing resulting in application of manual pressure or Femstop (St. Jude). A further patient required ultrasound-guided compression of the artery due to a large retroperitoneal bleed resulting from access complications. A larger proportion of the cases with complications were done as PPCI (44% vs 33%). The group with complications had higher systolic BP (140mmHg vs 128mmHg;  $P<0.05$ ) and MABP (97mmHg vs 75mmHg;  $P<0.05$ ) as compared with the group without any complications.

**Conclusion:** The Mynx closure device is safe and easy to use in the context of PCI, in both the elective and emergency (PPCI) settings. Complication rates, predominately minor, can be minimised in experienced hands.

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[Is secondary prevention information before discharge adequate after percutaneous coronary intervention?](#)

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**Introduction:** Implementation of prevention strategies for patients with coronary artery disease (CAD) is essential, but many fall short of reaching their goals. Patients often perceive themselves as healthy and are less motivated to change lifestyle. To obtain better results patients need repeated information, preferably with motivational and person-centered approaches.

**Aims:** To investigate whether health care providers inform CAD patients about risk factors and lifestyle changes at a percutaneous coronary intervention unit. Also to investigate whether the information given at discharge included secondary prevention management and if motivational and person-centered approaches were used.

**Methods:** This is a descriptive, observational study that includes both a qualitative and quantitative design. Physicians and nurses working at a percutaneous coronary intervention (PCI) unit and physicians at a coronary care unit (CCU) participated. A staff nurse observed and noted what information the patients received at the PCI unit. At the CCU, observations regarding secondary prevention strategies during the discharge counselling were performed.

**Results:** There were 50 observations made at the PCI unit. The information mainly consisted of tobacco consumption, physical activity and diet.

During the 31 discharge counselling sessions the diagnosis, interventional procedure and medical treatment were frequently included. Most patients received little or no person-centered or motivational counselling.

**Conclusion:** Nearly all patients at the PCI unit received information about the consequence of tobacco consumption, and more than half about the beneficial effects of physical activity. In contrast, the counselling at discharge need to focus more on behavioral changes and a motivational and person-centered approach.

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