

### Research Article

Published Date:-2019-12-30 00:00:00

[Evaluation of the effect of coronary artery bypass grafting on the right ventricular function using speckle tracking echocardiography](#)

**Purpose:** This was a prospective study conducted at Benha University hospital and National Heart Institute on one hundred patients underwent coronary artery bypass grafting (CABG) to evaluate the effect of CABG on the right ventricular (RV) function using speckle tracking echocardiography (STE).

**Methods:** All cases were subjected to detailed medical history, full physical examination, 12 leads electrocardiogram (ECG), routine laboratory tests including (complete blood picture, liver functions, renal functions and lipid profile) and echocardiography either conventional echocardiography or STE, all parameters obtained before and within 2 weeks after surgery.

**Results:** By conventional echocardiography there was statistically significant decrease in peak right ventricle systolic velocity (RVS) from  $(12.76 \pm 1.72)$  to  $(7.33 \pm 1.71)$  and tricuspid annular plane systolic excursion (TAPSE) from  $(22.8 \pm 3.99)$  to  $(13.77 \pm 4.63)$  among the studied patients after CABG. While there was significant increase in right ventricle fractional area change (RVFAC) from  $(44.69 \pm 3.25)$  to  $(49.01 \pm 3.36)$ . On the other hand, there was non-significant change in right ventricle end diastolic diameter (RVEDD) at mid-cavity from  $(26.37 \pm 2.72)$  to  $(26.53 \pm 2.72)$  and basal segment from  $(36.05 \pm 2.98)$  to  $(36.29 \pm 3.04)$ , right ventricle stroke volume (RVSV) from  $(65.44 \pm 7.02)$  to  $(65.85 \pm 6.86)$  and right myocardial performance index (RMPI) from  $(0.491 \pm 0.088)$  to  $(0.498 \pm 0.086)$ .

By STE There was statistically significant decrease in right ventricle global longitudinal strain (RVGLS) from  $(-20.63)$  to  $(-14.1)$  after CABG. There was statistically significant decrease in right ventricle free wall longitudinal strain [apical decreased from  $(-23.73)$  to  $(-13.7)$ , mid-cavity decreased from  $(-25.76)$  to  $(-11.53)$ , basal decreased from  $(-20.39)$  to  $(-10.13)$  and lateral wall declined from  $(-23.01)$  to  $(-9.13)$ ]. There was statistically significant decrease in interventricular septum longitudinal strain [apical decreased from  $(-19.77)$  to  $(-10.06)$ , mid-cavity decreased from  $(-17.81)$  to  $(-10.87)$  and basal decreased from  $(-15.89)$  to  $(-11.13)$ ]. There was statistically significant increase in RV circumferential strain of lateral free wall from  $(-12.04)$  to  $(-16.21)$ , while there was non-significant change in RV circumferential strain of septum from  $(-19.77 \pm 4.86)$  to  $(-20.37 \pm 5.14)$ .

**Conclusion:** Distorted RV geometry after CABG can lead to altered deformation parameters, in other words longitudinal functional parameters may underestimate RV function and the decrease in RVGLS was compensated by increase in circumferential strain of lateral free wall of RV without change in RVSV or RMPI. Therefore changes in deformation parameters should always be interpreted in relation to change in geometry.

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### Case Report

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[Aortic dissection causing 2 myocardial infarctions](#)

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A 56-year-old man was admitted to our hospital because of sudden onset of right-sided thoracic pain. The ECG showed inferior ST segment elevations. He has been treated with aspirin, clopidogrel, unfractionated heparin and tenecteplase, and his symptoms resolved after 30 minutes. About half an hour later, the patient developed again left-sided thoracic pain and the signs of an anterior myocardial ST-segment elevation infarction. 90 minutes after receiving the initial medications, the performed coronary angiography revealed a long dissection of a large ramus circumflexus. Furthermore, the left anterior descending coronary artery was occluded at about the mid-level. The left ventriculography showed a reduced ventricular function and a Stanford type A aortic dissection. Immediate patient transfer for emergency surgical intervention was arranged. However, ventricular fibrillation occurred during transport and he required endotracheal intubation and prolonged cardiopulmonary resuscitation. Unfortunately, he died during further transport.

In a patient with massive thoracic pain of initially uncommon localization in combination with fluctuation of ST-segment elevations, aortic dissection should be seriously taken into the differential diagnosis as well as into therapeutic management decisions (in particular antiplatelet and thrombolytic therapy).

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## Research Article

Published Date:-2019-11-26 01:00:00

### [Long-Term Impact of Coronary Artery Disease in Lung Transplantation](#)

**Background:** Adoption of the Lung Allocation Score (LAS) has led to increased listing of older patients and those with idiopathic pulmonary fibrosis (IPF) for lung transplantation (LTX). Older patients and those with IPF have higher prevalence of coronary artery disease (CAD), a relative contraindication for LTX. The impact of the LAS on CAD prevalence and cardiovascular morbidity in LTX recipients is unknown.

**Methods:** Retrospective review of single institution database from January 2000 to December 2010. Patients with and without CAD were compared by age, gender, LAS, single vs double LTX, and transplant indication. Survival was calculated by Kaplan-Meier method, and statistical significance determined by log-rank method. Survival analysis was performed on all patients and by 3:1 propensity matching. Differences in CAD, gender, and indication were determined by Chi-squared test. Differences in LAS and age were calculated with a two-tailed t - test.

**Results:** In the pre-LAS era, 6.2% (9/145) recipients had CAD vs. 9.2% (17/184) in the post-LAS era ( $p = 0.411$ ). Among all patients, recipients with CAD had a worse long term survival as estimated by Kaplan-Meier method ( $p = 0.001$ ), although there was no statistically significant difference after propensity matching ( $p = 0.14$ ). Although more recipients in the post-LAS era had a diagnosis of IPF [15/145 vs. 71/184 patients, ( $p < 0.001$ )], there was no difference in the prevalence of CAD in the IPF cohort compared to others. There were no differences in cardiovascular deaths among recipients with CAD, with IPF, or in the post-LAS era. Patients with a pre-transplant diagnosis of CAD had an decreased risk of new onset postoperative atrial fibrillation (AF) ( $p = 0.007$ ; HR:0.133; CI:0.030-0.583).

**Conclusion:** Adoption of the LAS was not associated with a significant change in proportion of recipients with CAD who underwent LTX at our institution, despite an increase in recipients with IPF. Recipients with CAD had a higher risk of developing new postoperative AF and worse survival than patients without CAD. Differences in survival, however, could not be attributed directly to CAD based on propensity matched analysis

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## Research Article

Published Date:-2019-11-26 00:00:00

### [Readjustment of antithrombotic therapy in stroke-patients owing to transesophageal echocardiography findings](#)

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**Objectives:** Cardioembolic etiology is a frequent source of ischemic stroke. Echocardiogram is the mainstay of cardioembolic source detection with regard to plan secondary stroke management, however it remains unclear how often clinically actionable findings are provided hereby. In addition, it is uncertain whether echocardiography should be performed transthoracic or transesophageal (TEE). In a monocenter study, we evaluated the frequency of pathological findings from TEE evaluation in patients with ischemic stroke with suspected cardioembolic and cryptogenic source and determined whether there was an associated adjustment in the prescribed administration of antithrombotic therapy.

**Materials and Methods:** Over a 21-month period (2012-2013), we enrolled 143 patients in a prospective monocenter study (mean age  $\pm$  standard deviation,  $70 \pm 12$  years; females, 44.1%) who were admitted to the Department of Neurology at the University of Lübeck due to ischemic stroke and who underwent TEE due to supposed cardiac embolism. We assessed the presence of atrial fibrillation; days from admission to TEE; and TEE findings, including atrial septal aneurysm, thrombogenic aortic arch, valve failure, presence of left atrial thrombus, and patent foramen ovale. Demographic information and medical history were drawn from patient records and the hospital information system.

**Results:** On average, TEE was performed 4 days after admission to the hospital. Left atrial thrombus was detected in 3 patients (2.1%), patent foramen ovale (PFO) in 27 (18.9%), atrial septum aneurysm in 17 (11.9%), and thrombogenic aortic arch in 29 (20.3%). Findings from TEE were commonly associated with therapeutic adjustment; antiplatelet therapy increased from 30.1% to 80.4%, oral anticoagulation therapy increased from 2.8% to 27.3%.

**Conclusion:** Findings from TEE for the evaluation of ischemic stroke lead to frequent adjustment of prior antithrombotic therapy, antiplatelet as well as anticoagulation.

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## Case Report

**Published Date:-2019-11-25 00:00:00**

[Resolved complete atrioventricular block and left ventricular severe dysfunction in patient with Wegener's granulomatosis after cyclophosphamide and corticosteroid treatment](#)

Wegener's granulomatosis is a systemic granulomatous focus on small to medium sized vessels. It typically affects sinuses, lungs and kidneys due to necrotizing granulomatous vasculitis. Less commonly, cardiac involvement is reported up to 8%-44% of cases [1-3]. It often rises to supraventricular arrhythmia, left ventricular systolic dysfunction, pericarditis, myocarditis, and valvulitis [4,5].

Cardiac conducting tissue involvement is rare and associated with increased mortality. It was only reported in fourteen previous cases, some of them were reversible to medical treatment [6].

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## Research Article

**Published Date:-2019-11-20 01:00:00**

[The Renin-Angiotensin System: Alamandine is reduced in patients with Idiopathic Pulmonary Fibrosis](#)

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Idiopathic Pulmonary Fibrosis (IPF) is a chronic and progressive disease without treatment that leads to death. Therefore, to control its progression to pulmonary hypertension is still a challenge. Moreover, there is no study that has investigated the Renin-Angiotensin System in patients with IPF.

**Objective:** Verify the plasma concentrations of Angiotensin I, Angiotensin II (AngII), Angiotensin-(1-7) [Ang- (1-7)] and Alamandine in patients with IPF.

**Methods:** Ten IPF patients, with or without PH, were included, and ten controls matched by sex and age. Quantitative plasma peptide concentrations (PPC) were expressed as mean and standard deviation or median and interquartile range. The Student Newman-Keuls t test was used for parametric data, Mann-Whitney for nonparametric data and, to compare proportions, the Fisher exact test was performed. The associations between clinical variables and the PPC were evaluated by Pearson or Spearman correlation coefficients. A  $p < 0.05$  was considered statistically significant.

**Results:** The Alamandine plasma concentration was significantly (365%) lower in the IPF group and positively associated ( $r = 0.876$ ) with pulmonary artery pressure (PAP). In addition, only in control group, the forced expiratory volume (FEV1%) was positively associated ( $p = 0.758$ ) with Ang-(1-7).

**Conclusion:** This study showed, for the first time, that there is a decrease in Alamandine participation in patients with IPF. The ACE-AngII-AT1 axis may be more active in this disease. In addition, our results suggest that Alamandine might be compensating the increase in PAP, as well as the Ang-(1-7) is improving the forced expiratory volume.

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## Research Article

Published Date:-2019-11-20 00:00:00

[Only low intensity of aerobic exercise improves respiratory compliance in pulmonary hypertensive rats](#)

**Objective:** To investigate in an animal model of Pulmonary Hypertension (PH) by monocrotaline whether a lower exercise intensity, which has lower potential to provoke dyspnea symptoms, could prevent the increase the right ventricle pressure and the decrease in respiratory compliance.

**Setting:** A research laboratory. **ANIMALS:** twenty-one Wistar rats were randomized to the groups: Control (CO; saline solution); PH-sedentary; PH-low and PH-moderate intensity of exercise training (ET).

**Interventions:** They received a single saline or monocrotaline subcutaneous injection (50 mg/kg). The exercise program was performed during 3-weeks.

**Main Outcome Measures:** Rats were evaluated by their morphometric and hemodynamic changes and by the respiratory mechanic responses induced by the exercise protocols.

**Results:** Both protocols of ET significantly ( $p < 0.05$ ) attenuated the increase in the right ventricular systolic pressure. However, the lower intensity was more effective to prevent the impairment in the respiratory and quasi-static compliance.

**Conclusion:** Collectively, our results showed for the first time the benefits of ET to the respiratory system mechanics. We also demonstrated that intensity is crucial in PH, probably due to the difficulty to match VO<sub>2</sub> capacity and O<sub>2</sub> demand during exercise. The improvement in quasi-static compliance not only might improve the ability to breathe, and capture oxygen, but also welfare.

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## Editorial

Published Date:-2019-11-15 02:10:00

[Pulse Synchronized Contractions \(PSCs\)](#)

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A key platform underpinning the traditional understanding of the cardiovascular system, with respect to the behavior of large arterial vessels, is Otto Frank's Windkessel Hypothesis [1]. This hypothesis posits simply that the smooth muscle walls of large arteries do not undergo rhythmic contractions in synchrony with the heartbeat but, rather, behave as passive elastic tubes undergoing distension from pulsatile pressure waves. The Windkessel Hypothesis is elegant, well described for over a century, ingrained in the understanding of cardiovascular medicine and physiology, and simply wrong.

Several groups have now shown that the arterial smooth muscle wall undergoes rhythmic activation in synchrony with the heartbeat in a variety of tissues, including human brachial artery; canine coronary, femoral, and carotid arteries; rabbit aorta; feline pulmonary artery and rodent aorta [2-8]. The phasing of these events is such that the upstroke of the contraction slightly precedes the upstroke of the pulse wave, suggesting nomenclature for the events as pulse synchronized contractions, or PSCs [3,6-8].

PSCs have been found to be of neurogenic origin, sensitive to the neural blocker tetrodotoxin [3,8]. Although the specific neural pathways regulating PSCs have not been elucidated, the alpha-adrenergic system is at least partially involved, as evidenced by reduction or blockade of PSCs by the alpha-adrenergic blocker phentolamine [8]. Further, PSCs have not been observed following vessel excision in in vitro studies, as an intact nervous system is not present. The pacemaker for the PSC resides in the right atrium, as suggested by two lines of evidence. First, pacing of the right atrial region to faster than spontaneous frequencies leads to a one-to-one correspondence of PSC frequency with the stimulation rate [3]. Additionally, excision of the right, but not the left, atrial appendage results in elimination of PSCs [3]. As the pacemaker region for PSCs and the heartbeat both lie in the right atrium, this may potentially allow for coordination between the heartbeat and pulse wave with PSCs [3,5,8]. Extensive evaluations also have been performed showing the PSC was not an artifact produced either by cardiac contractility or from the vessel distension from the pulse wave [3,5,6].

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## Research Article

Published Date:-2019-11-15 02:00:00

[Left ventricular ejection fraction and contrast induced acute kidney injury in patients undergoing cardiac catheterization: Results of retrospective chart review](#)

**Background:** Contrast-induced acute kidney injury (CI-AKI) is an important cause of increasing the hospital stay and in-hospital mortality. By increasing intra-renal vasoconstriction, left ventricular ejection fraction (LVEF) can increase the risk of CI-AKI. We sought to investigate whether LVEF can impact the incidence of CI-AKI after cardiac catheterization and whether it can be used to predict CI-AKI.

**Methods:** Patients underwent cardiac catheterization from December 2017 to February 2018 at Jersey Shore University Medical Center were enrolled in the study. Contrast-induced acute kidney injury (CI-AKI) was defined as an increase in serum creatinine of  $\geq 0.5$  mg/dL or an increase of  $\geq 25\%$  from the pre-procedure value within 72 hours post-procedure. The maximum allowable contrast dose was calculated using the following formula:  $(5 \times (\text{weight (kg)} / \text{creatinine level (mg/dL)}))$ . A multivariable logistic regression analyses, controlling for potential confounders, were used to test associations between LVEF and CI-AKI.

**Results:** 9.6% had post catheterization CI-AKI. A total of 18 out of 44 (44%) of patients who had CI-AKI also had ongoing congestive heart failure. No statistically significant association found neither with maximum allowable contrast ( $p = 0.009$ ) nor ejection fraction ( $p = 0.099$ ) with the development of CI-AKI.

**Conclusion:** In spite of the fact that no statistically significant relationship found between the percentage maximum contrast dose and the ejection fraction with the post-procedure CI-AKI, we heighten the essential of employing Maximum Allowable Contrast Dose (MACD) and ejection fraction in patients undergoing PCI to be used as a clinical guide to predict CI-AKI.

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## Case Report

Published Date:-2019-11-15 00:00:00

[Hemoptysis after subclavian vein puncture for pacemaker implantation: A case report](#)

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**Background:** Subclavian venous access for pacemaker lead insertion is a common procedure and is normally considered safe in the hands of an expert. However, subclavian venepuncture is not without complications, starting from mild subcutaneous hematoma to pneumothorax. We here present a case of hemoptysis occurring after difficult subclavian vein puncture, which subsequently improved on conservative management only.

**Case Summary:** A 65-year-old gentleman, post aortic valve replacement had persistent high-grade AV block and was taken up for a dual chamber pacemaker implantation. Immediately following venous access, he had a bout of hemoptysis, which recovered on its own. Post procedure chest x-ray was suggestive of alveolar hemorrhage which cleared gradually in next three-four days.

**Discussion:** Post subclavian venepuncture hemoptysis is known; but it is a rare complication, arising either because of lung parenchyma injury or arterial injury. This is mostly benign and improves on conservative management only; however rarely it may be massive and life threatening where transcatheter arterial embolization may be required.

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## Research Article

**Published Date:-2019-11-04 06:00:00**

[A Systematic review for sudden cardiac death in hypertrophic cardiomyopathy patients with Myocardial Fibrosis: A CMR LGE Study](#)

**Background:** Hypertrophic cardiomyopathy (HCM) patients have a predisposition for malignant VT/VF and consequently, sudden cardiac death (SCD). In single center studies, late gadolinium enhancement (LGE) defined fibrosis has been linked to VT/VF. However, despite innumerable investigations, SCD has not been definitely attributable to LGE. Explanations for these are believed to be related to insufficient statistical power.

**Methods:** We performed an electronic search of MEDLINE, PubMed: and CMR abstracts for original data published or presented between Jan 2001 to Mar 2011. Key search terms: HCM, LV fibrosis, SCD and LGE. Studies were screened for eligibility based on inclusion criteria: referral for CMR exam with LGE for HCM; and follow-up for incidence of VT/VF and SCD. Categorical variables were evaluated between patient groups via Chi-square test.

**Results:** A total of 64 studies were initially identified. Of these, 4 (6.3%) were identified and included (n = 1063 patients). Three prospective and one retrospective study were included. LGE was detected in 59.6% of patients. As expected, the presence of myocardial fibrosis was associated with VT/VF ( $\chi^2 = 6.5$ ,  $p < 0.05$ ; OR 9.0, (95% CI 1.2 to 68.7). Moreover, myocardial fibrosis strongly predicted SCD ( $\chi^2 = 6.6$ ,  $p < 0.05$ ; OR 3.3 (95% CI 1.2 to 9.7).

**Conclusion:** Despite single center CMR studies, LGE has consistently predicted VT/VF while prediction of SCD has remained paradoxically unlinked. Although the lack of studies meeting our criteria limited our ability to perform a comprehensive meta-analysis, we have been able to demonstrate for the first time that LGE-defined fibrosis is a predictor of SCD in patients with HCM0.

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## Review Article

**Published Date:-2019-11-04 03:00:00**

[Do beta adrenoceptor blocking agents provide the same degree of clinically convincing morbidity and mortality benefits in patients with chronic heart failure? A literature review](#)

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Chronic heart failure has been extensively characterized as a disorder arising from a complex interaction between impaired ventricular performance and neurohormonal activation. Since beta adrenoceptor blocking agents are currently considered an integral component of therapy for the management of patients with severe chronic heart failure; several well designed clinical trials have been conducted to determine the morbidity and mortality benefits of these agents these studies, however did not yield the same results in terms of morbidity and mortality benefits. Currently only Bisoprolol, Carvedilol and sustained release metoprolol succinate have clinically proven and convincing morbidity and mortality benefits the current list of approved medicines of the National Health Insurance Scheme (NHIS) of the republic of Ghana does not provide coverage for these lifesaving therapeutic agents. The objective of this review was to collate the relevant scientific evidence that will convince the authorities at the National Health Insurance Authority (NHIA) of the Republic of Ghana to include at least one of the evidence based beta adrenoceptor blocking agents in the list of approved medicines.

A thorough search on the internet was conducted using Google scholar to obtain only the clinically relevant studies associated with the benefits of beta adrenoceptor blocking agents in patients with chronic heart failure published in the English language. The phrases beta adrenoceptor blocking agents and chronic heart failure were used as search engines.

The search engine yielded several studies that met the predefined inclusion criteria. However, only the Cardiac Insufficiency Bisoprolol Studies (CIBIS-I and CIBIS-II), Carvedilol Prospective Randomized Cumulative Survival Study (COPERNICUS) and Metoprolol CR/XL Randomized Intervention Trial (MERIF-HF) because of the clinical relevance of their findings Beta adrenoceptor blocking agents such as atenolol and propranolol have been used in the management of patients with chronic heart failure. However, their efficacy and optimal dose in reducing mortality have not been scientifically established not all beta adrenoceptor blocking agents scientifically studied provide the same degree of clinically meaningful and convincing morbidity and mortality benefits in patients with chronic heart failure.

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## Research Article

**Published Date:-2019-11-04 00:00:00**

### [Diagnosis of critical congenital heart defects in Iceland 2000-2014](#)

Critical congenital heart defects (CCHDs) are preferably diagnosed prenatally or soon after birth. Late diagnosis has been related to poorer prognosis. The aim of this study is to assess when CCHDs are diagnosed in Iceland and whether late diagnosis is a problem. All live born children in Iceland and fetuses diagnosed with CCHDs during the years 2000-2014 were included. CCHD was defined as a defect requiring intervention or causing death in the first year of life, or leading to abortion.

The total number of pre- and postnatal diagnosis of CCHDs was 188. Prenatal diagnosis was made in 69 of 188 (36.7%). Of 69 diagnosed prenatally 33 were terminated due to CCHD. Of the 155 live born children with CCHD, 36 (23.2%) had a prenatal diagnosis and 100 (64.5%) were diagnosed shortly after birth, before discharge from birth facility. 19 children (12.3%) were diagnosed late, that is after discharge from birth facility. Coarctation of the aorta was the most common CCHD diagnosed late (6/19).

Prenatal screening and newborn examination give good results in diagnosis of CCHDs in Iceland. Late diagnosis are relatively few, but both the number of prenatally diagnosed CCHDs and CCHDs diagnosed shortly after birth can be further improved.

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## Research Article

**Published Date:-2019-10-28 00:00:00**

### [Evaluation of the predictive value of CHA2DS2-VASc Score for no-reflow phenomenon in patients with ST-segment elevation myocardial infarction who underwent Primary Percutaneous Coronary Intervention](#)

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**Objective:** The aim of this study was to estimate the predictive clinical value of CHA2DS2-VASc score for no-reflow phenomena in patients having ST-segment elevation myocardial infarction (STEMI) who applied to primary percutaneous coronary intervention (PCI).

**Subjects and Methods:** Three-hundred STEMI patients underwent primary PCI. They were classified into: group (1) included 27 patients with no-reflow and group (2) included 273 patients without no-reflow (control). CHA2DS2-VASc risk score was computed for each patient.

**Results:** This study found statistically significant difference ( $p < 0.05$ ) in multivariate analysis of the association between CHA2DS2-VASc score and no-reflow phenomenon. The predictive power of individual components in CHA2DS2-VASc score for no-reflow was statistically significant difference ( $p < 0.05$ ). So, significantly higher CHA2DS2-VASc score is connected with higher risk of no-reflow and in-hospital mortality rate.

**Conclusion:** Significantly higher CHA2DS2-VASc score is associated with higher risk of no-reflow phenomenon and in-hospital mortality rates in patients with STEMI who underwent primary PCI.

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## Research Article

Published Date:-2019-10-21 00:00:00

### [Impact of Pacemaker Implantation on 12-Month Resource Utilization Following TAVR Hospitalization](#)

**Purpose:** This study reports resource utilization during a Medicare Beneficiary's (MBs) Transcatheter Aortic Valve Replacement (TAVR) index hospitalization and all subsequent encounters for 12 months and compares data between MBs who did or did not receive a pacemaker implantation (PPM) during their index hospitalization.

**Method:** This retrospective study examined Medicare hospital claims from January 1, 2014 through June 30, 2015. 15,533 MBs who survived for 365 days were studied. Information from all encounters during the study period was combined to compare hospital resource utilization and outcomes.

**Results:** 14.8% of MBs had a PPM during the index hospitalization. 46.0% of MBs had at least one readmission to a hospital during the 365-day follow-up period. 54.6% of MB's first hospital readmission occurred within 90 days of their TAVR discharge date. Average total Medicare reimbursement for all hospitalizations was  $\$60,638 \pm \$28,974$  associated with average total hospital length of stay of  $11.2 \pm 11.7$  days. After adjusting for demographics and 47 comorbid conditions, MBs receiving a PPM during the index TAVR had significantly higher estimated Medicare reimbursement (\$5,132) and longer total length of stay (1.8 days) for the entire study period than MBs not receiving a PPM.

**Conclusion:** Total Medicare reimbursement and hospital LOS were significantly higher among MBs that had a PPM implantation during their index admission; however, there were no significant differences in readmission rates, readmission length of stay, or days to first readmission during the follow-up period between the two study cohorts.

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## Research Article

Published Date:-2019-10-17 00:00:00

### [The effect of anemia on serum hepcidin levels in patients with heart failure](#)

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**Background:** Anemia is an accelerating problem among patients with heart failure (HF) and its presence is associated with more symptoms. In this study, we investigated whether anemia in heart failure was related to hepcidin concentration.

**Methods:** 50 patients with heart failure and 20 healthy subjects with no history of a chronic illness including heart failure as control group, were included in the study. Heart failure was verified by echocardiography in each subject and patients were defined as ones with reduced ejection fraction (HFrEF) if EF  $\leq$  40% and with preserved ejection fraction (HFpEF) if EF 40% - 50%. Blood samples were taken from all patients after 10-12 hours fasting. Anemia assessment was performed according to World Health Organization (WHO) criterias.

**Results:** There was a positive correlation between hepcidin concentration and urea, ferritin, hemoglobin, hematocrite, C-reactive protein ( $p < 0,05$ ). Hepcidin concentrations of anemic heart failure patients were significantly lower than the non-anemic heart failure patients ( $p < 0,05$ ).

**Conclusion:** We found that serum hepcidin concentration in anemic patients with heart failure was lower than in heart failure patients without anemia. We believe that iron deficiency occurs as a result of inflammatory process in heart failure and therefore hepcidin concentrations decrease as a response. However, long-term follow up studies are needed.

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## Case Report

**Published Date:-2019-10-04 01:00:00**

[Scintigraphic non-invasive diagnosis of amyloid cardiomyopathy](#)

Amyloidosis encompasses a heterogeneous group of disorders, characterized by extracellular deposition of insoluble abnormal amyloid aggregates, due to a failure in protein quality control. Cardiac amyloidosis is a disorder in which proteins misfold and deposit as amyloid fibrils that infiltrate the myocardial extracellular space [1].

Transthyretin (ATTR) and light chain (AL) are the most frequent types of cardiac amyloidosis. Transthyretin is a protein mainly synthesized by the liver, it may be hereditary or acquired from either wild-type (ATTRwt) or mutant (ATTRm) amyloid [2]. Cardiomyopathy is a common manifestation of ATTR amyloidosis with a particularly poor life expectancy of 2 to 6 years after diagnosis [3]. Although considered rare, the prevalence of this serious disease is likely underestimated because symptoms can be non-specific, and diagnosis largely relies on amyloid detection in tissue biopsies.

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## Research Article

**Published Date:-2019-10-04 00:00:00**

[Plaque morphology in diabetic vs. non diabetic patients assessed by Multi-Slice Computed Tomography coronary angiography](#)

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**Background and Objectives:** Multi-slice computed tomography (MSCT) provides high accuracy for noninvasive assessment of coronary artery disease (CAD). The introduction of the latest computed tomography technology allows comprehensive evaluation of various aspects of CAD, including the coronary calcium score, coronary artery stenosis, bypass patency, and myocardial function. This study aimed to assess the effect of DM on coronary arteries evaluated by MSCT-CA Comparing Plaque Morphology in Diabetic patients with Non-Diabetic Whoever Controlled or not assessed by HbA1c.

**Methods:** In this study we randomly assigned 150 adult patients were diagnosed with suspected coronary artery disease underwent MSCT-CA for evaluation their coronaries regarding luminal stenosis, Plaque analysis, Remodeling index, SSS, SIS and Ca score.

**Results:** There was statistically significant difference between diabetics & non-diabetic groups in LM lesions with ( $P = 0.029$ ). also, the results of multivariate logistic regression analysis after adjustment for age and sex, diabetics were shown a trend toward more mixed plaque with statistically significant {(OR): 3.422, 95% CI 1.66-7.023,  $P = 0.001$ }; whereas, after adjustment for age, sex, history of hypertension, smoking, and hypercholesterolemia, patients with diabetes also shown a trend toward more mixed plaque with statistically significant (OR: 3.456, 95% CI 1.668-7.160,  $P = 0.001$ ). It means significant differences in coronary atherosclerotic plaque burden and composition between diabetic and non-diabetic patients, with a higher proportion of mixed plaques, a more vulnerable form of atherosclerotic plaque in diabetics ( $P < 0.001$ ) otherwise No significant difference.

**Conclusion:** MSCT angiography may be useful for the identification of CAD in diabetic and non-diabetic patients. There were statistically significant differences in coronary atherosclerotic plaque burden and composition, with a higher proportion of mixed plaques, between diabetic and nondiabetic patients. Furthermore, MSCT may give accurate information about plaque characteristics according to different coronary risk factors, thereby identifying high risk features warranting a more intensive anti-atherosclerotic treatment.

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## Research Article

Published Date:-2019-09-26 00:00:00

[Prevalence of congenital heart diseases among primary school children in the Niger Delta Region of Nigeria, West Africa](#)

**Introduction:** Congenital heart diseases (CHD) are leading causes of childhood morbidity and mortality especially in developing countries. Community-based studies are important in ascertaining the burden of the disease.

**Objectives:** The study was set out to determine the prevalence and types of CHD among primary school children in Port Harcourt Local Government Area (PHALGA) of Rivers State, Niger Delta, Nigeria.

**Methods:** A total of 1,712 primary school pupils were selected by multistage sampling from twelve schools in PHALGA. A questionnaire was used to obtain information from pupil's parents on their child's biodata and symptoms suggestive of heart disease. General physical and cardiovascular system examinations were carried out on each selected pupil, following which those with symptoms and/or signs suggestive of heart disease had echocardiographic confirmation of their cardiac status.

**Results:** The 1,712 subjects were aged 5-14 (mean  $8.48 \pm 2.30$ ) years. 874 (51.1%) were females while males were 838 (48.9%). The study revealed that 31 pupils had congenital heart diseases confirmed by echocardiography, giving a prevalence of 18.1 per 1,000 pupils. The commonest cardiac defects seen were acyanotic CHD in 30 (96.8%) pupils while cyanotic CHD was seen in only one (3.2%) pupil. Among the acyanotic CHD, atrial septal defects (83.9%) followed by ventricular septal defects (9.7%) were the commonest. CHD occurred with higher frequency among females (64.5%) and among the younger age group of 5-9 years (61.3%) though these were not statistically significant ( $p > 0.005$ ).

**Conclusion:** Cardiac examination as part of compulsory health screening at primary school entry will help detect children with CHD, reduce delay in diagnosis for intervention, avert debilitating morbidity and assure a better quality of life.

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[Novel paclitaxel-coated balloon angioplasty via single retrograde popliteal access for challenging superficial femoral artery and iliac artery lesions?](#)

**Objectives:** We report our results regarding the use of BioPath™ paclitaxel-coated balloon catheters for superficial or distal external iliac artery revascularization via single retrograde popliteal access.

**Methods:** We included 105 prospective consecutive patients. Single retrograde popliteal access was achieved under ultrasound guidance with the patients laid prone. An over-the-wire atherectomy system was used if risk of distal embolization was high due to plaque intensity of the target lesion. A 4 to 7 mm-diameter BioPath™ 035 balloon catheter was used for all lesions. Follow-up at 6th month included doppler ultrasound examination for patency.

**Results:** Seventy-two patients (68.6%) had total SFA occlusion and 41 patients (39%) had concomitant external iliac artery involvement, out of whom 31 (29.5%) had total occlusion. Procedural success 90.5% for superficial femoral artery and 85.3% for external iliac artery. One-year patency rates in SFA and EIA were 84.8% and 80.4%, respectively

**Conclusion:** Single retrograde popliteal access and drug-coated balloon angioplasty may offer a useful alternative to known modalities in treatment of challenging superficial femoral artery and concomitant iliac artery lesions

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**Research Article****Published Date:-2019-09-20 00:00:00**[Arrhythmia of the heart - computer analysis](#)

The problem of synchronization of oscillations of various physical nature is discussed. From the standpoint of the theory of synchronism, a model of the heart is considered as a system of four connected between self-oscillating links: two atria and two ventricles. The synchronous and asynchronous operating modes are considered at sinusoidal and relaxation oscillations. A computer program has been compiled that simulates the fluctuations in the heart using four differential equations. Four examples of calculation according to the program are given for asynchronous and synchronous operation modes. The possibility of evaluating the ablation procedure from the perspective of a computer model is discussed.

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**Review Article****Published Date:-2019-09-18 00:00:00**[A mouse model of coronary microvascular disease using a photochemical approach](#)

The development of reproducible rodent models of coronary microvascular disease (MVD) is essential for the early detection, treatment, and mechanism study of the pathophysiology. We hypothesized that endothelial dysfunction and subsequent microthrombi in the coronary arterioles, two early events in clinical coronary MVD, could be reproduced by photochemical reaction (PCR) technology in mice hearts. After rose bengal (one of photosensitizers) was administrated systemically, a green light was locally used to activate the photosensitizer, inducing over-production of oxidative stress in the heart. Following PCR, animals demonstrated reproducible endothelial injury, occlusion in arterioles, focal ischemia, and infarct-let with preserved cardiac function. Our technique has proven to be a reliable and reproducible means of creating coronary MVD in mice. We believe that this is an ideal model for developing a novel molecular tracer for earlier detection of coronary MVD, for testing new anti-fibrinolytic drugs, and for investigating the complex pathophysiology of coronary MVD. The protocol for establishing this model takes about thirty to forty minutes.

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**Case Report****Published Date:-2019-09-13 00:00:00**[Anomalies of coronary artery origin: About two cases](#)

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Anomalies of coronary artery origin are congenital malformations characterized by the abnormal birth of a coronary artery from the contralateral coronary aortic sinus (birth of the left coronary artery from the right sinus or birth of the right coronary artery from the left sinus). The artery concerned has an abnormal initial path between the aorta and the pulmonary artery; this segment is most often intramural, in the aortic wall. They are rare with a prevalence (0.1% to 0.3% of the population).

They pose a high risk of sudden stress death related to exercise myocardial ischemia. The most common mode of discovery is aborted sudden death, but sometimes fortuitously. The contribution of multi-round CT is described for the positive diagnosis of these anatomical variations, sometimes delicate in coronary angiography, but also for the distinction between “benign” and “malignant” forms, potentially responsible for myocardial ischemia. Treatment is usually surgical in symptomatic forms. We report the cases of two patients with coronary connection abnormalities discovered in adulthood.

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## Research Article

Published Date:-2019-09-03 00:00:00

[How often is Klippel-Feil Syndrome associated with congenital heart disease presentation of five cases and a review of the literature](#)

**Introduction:** Klippel-Feil syndrome (KFS), is a bone disorder characterized by the abnormal joining (fusion) of two or more spinal bones in the neck (cervical vertebrae), which is present from birth. Three major features result from this abnormality: a short neck, a limited range of motion in the neck, and a low hairline at the back of the head. In some individuals, KFS can be associated with a variety of additional symptoms and physical abnormalities which contribute in the deterioration and complication of the condition of the child.

**Aim of presentation:** Here, we report five children from Kosovo with KFS associated with different heart abnormalities, clinical presentation, diagnosis, management, and outcomes of selected conditions in resources-limited settings.

**Methods:** Retrospectively we analysed medical reports of five children, diagnosed at different age with congenital disease and clinical and lab signs of Klippel-Feil syndrome.

**Conclusion:** Basing on our cases, all diagnosed in a small country as a Kosovo, we can conclude that KFS is not such a rare condition. In addition, such syndrome is not so rarely associated with different congenital heart disease. In four cases cardiac surgery was indicated and successfully was done abroad Kosovo in the lack of such services in Kosovo.

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