Evaluation of pulmonary artery pressure in the aged population

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Aim: We sought to non-invasively evaluate pulmonary hypertension in elderly patients with no clear cause of pulmonary hypertension.

Methods: We enrolled 200 consecutive patients who are at least 60 years of age with no clear cause of pulmonary hypertension, referred for echocardiographic evaluation at Heliopolis and Ain Shams University Hospitals in the period from August 2017 to February 2018. All patients underwent transthoracic echocardiography to measure the pulmonary artery systolic pressure, diastolic function indices, left atrial diameter and left ventricular ejection fraction and wall motion abnormalities. Pulmonary hypertension was defined as pulmonary artery systolic pressure ≥ 36 mm Hg.

Results: The mean age of the whole series was 65.5 ± 5.5 years. Patients with pulmonary hypertension (20% of the whole series) were more often females, hypertensive, more likely to have large left atrial diameter, diastolic dysfunction, and more likely to have mitral regurgitation (p < 0.05 for all). Multivariate logistic regression analysis identified female gender, diastolic dysfunction, and lower ejection fraction as the independent predictors of the presence of pulmonary hypertension.

Conclusions: Pulmonary hypertension is fairly prevalent in elderly patients. Female gender, diastolic dysfunction, and lower ejection fraction were the independent predictors of the presence of pulmonary hypertension in this patient group.

Immediate versus deferred PCI in patients presented with acute ST segment elevation myocardial infarction with moderate to high thrombus burden

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Background: The management of acute ST elevation myocardial infarction is still under the umbrella of research due to the plenty of areas that are waiting for answers. During performing primary PCI, moderate to high thrombi may be found occluding the culprit artery partially or totally. Up till now, there are no definitive guidelines to follow in the cases of acute STEMI with moderate to high thrombus burden. So, the optimal management of a large intracoronary thrombus in patients with acute coronary syndromes and with an urgent need of revascularization is still unclear. Our object is to investigate whether deferring the percutaneous coronary intervention in patients presented with STEMI with moderate to high thrombus burden after a course of intensive dual anti-platelet and IV Glycoprotein IIb/IIIa receptor antagonists (Tirofiban 25 mcg/kg bolus and 0.15 mcg/kg/min maintenance infusion or Eptifibatide 180 mcg/kg bolus and 0.5 mcg/kg/min) for 24-48 hours improves the outcomes compared with immediate PCI.

Methods: We analyzed 100 patients using interventional, non-randomized case control study. Patients were divided into 2 groups, 50 in each group. It included the patients presented with acute ST elevation myocardial infarction with moderate to high thrombus burden. The first group included patients who underwent coronary angiography with immediate PCI. While the second group included the patients who were deferred on dual anti-platelet and Glycoprotein IIb/IIIa receptor antagonists tirofiban (Aggrastat), or eptifibatide (Integrilin) for 24-48 hours. All those patients had a pre-discharge echo for assessment and followed up 4 weeks after discharge for MACE.

Results: Compared to the immediate PCI, The deferred PCI shows no statistical difference as regard the in-hospital mortality (Immediate PCI group 0(0%) and deferred group 1(2%), P = 0.315), complications (0(0%) in the first group and 3 (6%) in the second group as well as The MACE after 1 month follow up (0(0%) in the first group and 0(0%) in the second group for morbidity and mortality).

Conclusion: There is no difference as regard in-hospital mortality as well as complications pre-discharge and also for the MACE in the 1 month follow up.

Role of multislice CT in assessment of coronary artery remodeling

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Introduction: Positive arterial remodeling may be a characteristic of early proliferative lesions, allowing considerable plaque accumulation despite normal luminal size. These accumulating plaques, characterized by inflammatory and proliferative processes, may be particularly “vulnerable” to rupture leading to acute coronary syndromes.

Aim: To study the role of multislice CT coronary angiography in plaque characterization and vessel wall analysis in positively
remodeled lesions causing non significant stenosis and it’s predictors of 90 days cardiovascular clinical events.

**Patient and Methods:** A prospective single center study that included 55 patients who were referred for MSCTCA. Patients with single vessel disease and found to have positively remodeled lesion causing stenosis < 70% were included. We chose either the most expansive or solitary lesion for each patient. Positive Remodeling defined as RI > 1.05 Using Semi automated method, the following measurements were done in the reference segment and remodeled segment respectively. The lumen area, wall area, vessel area, wall / lumen area percentage, plaque burden, total plaque area. Each plaque was analyzed according to color code similar to IVUS and different plaque components were differentiated (low, medium, high attenuation). The patients were followed for 90 days for clinical events.

**Results:** The majority of the lesions were found in the proximal LAD (43.6%). The Calculated Remodeling index mean was 1.41 ± 0.25. Total 25 patients had events in the form of ACS, PCI, CA related to the index lesion. Duration of DM, degree of luminal narrowing, calculated wall / lumen area percentage and plaque burden at remodeling site were predictors for events. The calculated wall / lumen area percentage mean was 263.72 ± 122.71%. A cut of value of > 226% was found a predictor for clinical events. The plaque burden percentage mean was 69.72 ± 9.71%, a value of > 69% was found a predictor for clinical events. Both values had a sensitivity of 68 and specificity of 86.6 and PPV of 81.

We didn’t find any significant correlation between calculated remodeling index and different coronary artery disease risk factors nor the site of the lesions. Patients with high RI > 1.4 were found to have significantly higher area of lower attenuation plaque component (-100 : 49 HU). However, the area of medium attenuation plaque component (50 : 149 HU) was not associated with high RI.

Patients who had acute coronary syndrome on their initial presentation were found to have correlation with positive remodeled lesions with a high RI > 1.4

**Conclusion:** In positively remodeled lesions, both plaque burden and wall / lumen area percentage are associated with future cardiovascular clinical events. CTA is a prime non invasive, easy tool that allows quantitative plaque assessment, study changes in vessel wall, allowing detecting patient at risk of future events.

**Cardiac rehabilitation after myocardial infarction: a comparison between the regular and intensive cardiac rehabilitation program**


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**Objective:** To assess Intensive exercise program for cardiac rehabilitation after anterior STEMI and to compare its effect on functional capacity, left ventricular systolic and diastolic functions, lipid profile and quality of life with regular standard exercise cardiac rehabilitation program

**Study design:** Prospective cohort study including 80 patients with ischemic heart disease who attended the outpatient CR cardiac rehabilitation program in Ain Shams University Hospital divided into two equal groups (40 patients each): Group (A) included the patients who did regular cardiac rehabilitation program, group (B) joined the intensive cardiac rehabilitation program. Several clinical, analytical and echocardiographic parameters were evaluated at the beginning and at the end of the program after three months, including the results of a treadmill exercise test.

**Results:** Both groups showed dramatic improvement in all items of comparison, especially functional capacity, LV functions, total and LDL cholesterol and quality of life as assessed by exercise test, echocardiography and QOL questionnaire. There was no significant difference between the two groups in improvement except in group A who had regular exercise program in the QOL especially the physical component.

**Conclusion:** Cardiac rehabilitation programs had positive effects; decreasing morbidity and sense of disability especially after major events (myocardial infarction), improving functional capacity and psychological level by increasing self-confidence and emotional well-being, and improving clinical, analytical and echocardiographic parameters. Intensive cardiac rehabilitation program was non-inferior to the regular moderate intensity cardiac training program.

**Effect of ablation of adenosine induced pulmonary veins dormant conduction after pulmonary vein isolation (PVI) on intermediate term recurrence of atrial fibrillation (AF)**


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**Background:** Catheter ablation is progressively used to treat atrial fibrillation, but recurrences of arrhythmia are common. Adenosine might identify pulmonary veins at risk of reconnection by unmasking dormant conduction, and thereby guide additional ablation to improve arrhythmia outcomes. We evaluated whether adenosine guided pulmonary vein isolation could prevent arrhythmia recurrence in patients undergoing radiofrequency catheter ablation for atrial fibrillation.

**Methods:** This was an exploratory pilot study involving 50 patients with paroxysmal/persistent AF who were admitted to our hospital for radiofrequency catheter ablation during the period from September 2014 to July 2016. After pulmonary vein isolation, intravenous adenosine 12 mg was administered. If dormant conduction was present, patients were assigned to 3 groups: Group I (20 patients): Adenosine was given following PV isolation for detection of acute PV-reconnection, with re-isolation of reconnected PVs. Group II (20 patients): The procedure was terminated as soon as PV isolation was achieved, with no adenosine. Group III (10 patients): Adenosine was given following PV isolation for detection of acute PV-reconnection, with no reconnections.

**Results:** This study included 50 patient’s, the mean age of the study group was 44.50 years (± 12.62 SD), with males representing 80% (n = 40) of the patients & females representing 20% (n = 10). The study included 25 hypertensive patients (50%), 14 smokers (28%), 6 diabetic patients (12%) and only one patient with HCM (2%). The patients included in the study were suffering from atrial fibrillation for a mean duration of 44.82 months (± 24.58 SD) with a mean frequency of 3.34 ± 1.32 times/month, only 17 patients had persistent AF (34%) while 33 patients (66%)