Non Invasive Modality for Diagnosis of Coronary Artery Disease

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ABSTRACT

Diseases caused by atherosclerosis are the leading cause of morbidity and mortality in the developed country in the world. Risk factor such as hyperlipemia especially high in LDL cholesterol, diabetes mellitus, hypertensi, ect can progress to become coronary artery disease. Acute coronary syndrome is one's of manifestation of coronary artery disease.

That is rupture of the plaque leading to various degrees of coronary artery thrombosis and occlusion along with distal platelet microembolism, as a spectrum of clinical syndromes ranging from unstable angina to Non ST Elevation Myocardial infarctionI and ST Elevation Myocardial Infarction.

In the last decade, patients visiting the emergency department with acute coronary syndrome, 2 – 5% were discharged home caused by unspecific chest discomfort, these situation resulting in increased mortality. Early diagnostic is the best way in the preventive cardiology in coronary artery disease. As asymptomatic cases is not rare in coronary artery disease so we need some indirect way to find this cases such as electrocardiogram, exercise test and echocardiografi. Start with good anamneses, physical examination, electrocardiografi, exercise test, echocardiografi and even Xray are very important in finding almost all coronary artery diseases cases.

Keywords: risk factor ; cardiac pain; exercise test ; angina pectoris stable ; unstable

Physiology Assessment of Coronary Lession: The Role of Fractional Flow Reserve (FFR)

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ABSTRACT

The benefit of percutaneous coronary intervention for acute coronary syndrome (ACS) is clear. In non-culprit lesions acute coronary syndrome with angiographic stenosis were often dilated, without consideration of objective ischemia. How the benefit of percutaneous coronary intervention in stable coronary artery disease? Revascularization treatment based on ischemia may improve patient outcomes.

Fractional flow reserve (FFR) is a physiological index of the severity of a stenosis in an epicardial coronary artery, based on the pressure differential across the stenosis. The accurate measurement of FFR is predicated on maximal hyperemia being achieved by pharmacological dilation of the downstream resistance vessels (arterioles). When the stenosis causes FFR to be impaired by > 20%, it is considered to be significant and to justify revascularization.

The 5-year results for FAME 2 represent the final follow-up for the study, which enrolled 1,220 patients with stable CAD and angiographically significant stenosis. FFR was assessed in all target lesions; the 73% of patients who had at least one flow-limiting lesion of ≤ 0.80 were randomized to optimal medical therapy with or without FFR-guided PCI, while the remainder, with FFR values > 0.80, were enrolled in a registry and only received optimal medical therapy.

Ultimately, 888 patients were randomized, with 447 patients being placed in the PCI group and 441 in the medical therapy group.

At 5 years, the primary composite endpoint of death, MI, or urgent revascularization was less common with PCI than with medical therapy (13.9% vs 27.0%; HR 0.46; 95% CI 0.34-0.63) among randomized patients.

In patients with stable coronary artery disease, an initial FFR-guided PCI strategy was associated with a significantly lower rate of the primary composite end point of death, myocardial infarction, or urgent revascularization at 5 years than medical therapy alone. Patients without hemodynamically significant stenoses had a favorable long-term outcome with medical therapy alone.

Keywords: Stable CAD; FFR; Fame2 trial - 5 years

Optimal Dual Anti Platelet Therapy (DAPT) Management on High Bleeding Risk Patients on Non Polymer Stent

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ABSTRACT

The latest focused update on DAPT guideline by ESC was in 2017, with the collaboration of EACTS. There have been numerous studies on the available antiplatelet over the past 10 years to support the use of DAPT post PCI procedure. In the DES era, most of the patients will be on prolonged DAPT use up to one year, but the DAPT data for biorabsorbable stent and biodegradable polymer stent are still coming and may take some time to be understood.

Many types of degradable polymer stents are being tested and became available in the market with different degradation time : 3, 6, 12 months and this would prove to be a challenge for clinician to determine the actual duration for DAPT, especially for those with high bleeding risk. This includes patients who are elderly, CKD, those on anticoagulant therapy and going for surgery. The non-polymer stents with drug delivery directly from the stent surface or groove may be a safer option, but there has not been a strong data comparing both polymer versus non polymer stent data on the DAPT duration. This remains to be explored for the benefit of the patients who require shorter DAPT post PCI.

Revascularization of Acute Myocardial Infarction in non PCI-Capable Health Services: Pharmacology or Invasive Strategy?

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ABSTRACT

Current European and American guideline on management of myocardial infarction, recommended that invasive strategy is the recommended treatment. However in the current situation, we are faced with several barriers to fulfill the recommendation due to limited health facility with catheterization lab, man power and budget. Despite the barriers, we have to assess and understand the risk and benefit of each procedure so an optimal treatment for Myocardial infarction can be given. We can categorized Myocardial Infarction into two categories, STE Myocardial infarction and NSTE Myocardial infarction (STEMI). For STEMI, reperfusion in timely manner is the main priority that has Non PCI capable. From our iSTEMI initiative, we have demonstrated reperfusion with either fibrinolysis or PPCI has approximately 50% lower in mortality as compared to non reperfused patient. Patient who has received PPCI has lower mortality as compared to fibrinolysis patient. However numerous studies has also demonstrated that time delay will increased mortality and the acceptable time delay is below 120 minutes. From our iSTEMI initiatives registry, we has demonstrated that despite establishing a STEMI network transfer time in Jakarta region is approximately 3 hours which far too long from the recommended guideline. Unless the network STEMI registry is able to has demonstrated that the delay due to transfer time is less that 120 minutes, the first line reperfusion strategy in non-PCI capable facility is fibrinolysis. Numerous pharmacoinvasive studies have also demonstrated that pharmacoinvasive strategy has comparable outcome as PPCI. Therefore ideally pharmacoinvasive strategy is the ideal recommendation for STEMI treatment in our current status. As for NSTEMI patient the recommended treatment for early invasive strategy depends on the risk stratification. The very high risk patient should transfer to PCI capable center immediately and the high risk patient within 48 hours.

Keywords: Myocardial infarction; Pharmacoinvasive strategy; early invasive strategy

The Appropriateness of Anticoagulants in Management of Acute Myocardial Infarction

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ABSTRACT

Primary Percutaneous Coronary Intervention (PPCI) is the preferred reperfusion strategy in patients with ST elevation myocardial infarction (STEMI) within 12 h of symptom onset, provided it can be performed expeditiously. However, in some circumstances, PPCI is not an immediate option and fibrinolysis could be initiated expeditiously. The extent to which the PCI-related time delay diminishes the advantages of PCI over fibrinolysis has been widely debated. Whereas, high-risk acute coronary syndrome (ACS) patients need revascularization treatment with PCI as one of the main choice, but optimum antithrombotic (i.e. antiplatelet and anticoagulation) is one of key treatment success. How we choose anticoagulant agents is based on the risk of thrombosis and bleeding. Low molecular weight heparin Enoxaparin has been studied extensively across ACS patients included STEMI, and has benefit over unfractionated heparin (UFH).

Keywords: STEMI; Reperfusion; PCI; Fibrinolysis; Antithrombotic