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Under-diagnosis and Under-treatment of Heterozygous Familial Hypercholesterolemia in Patients with Cardiovascular Diseases

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Background: Heterozygous familial hypercholesterolemia (HhFH) is the most common genetic disease and cause of premature cardiovascular disease (CVD). However, the diagnosis rate is less than 0.1% in Japan.

Purpose: We examined the patients hospitalized for CVD and evaluate the extent to which HhFH is underdiagnosed and under-treated.

Methods: We analyzed the consecutive 553 patients hospitalized for CVD from 2013 to 2015. To investigate the prevalence of HhFH, we focused on the patients with high LDL-C levels more than 140mg/dl in these CVD patients.

Results: Sixty-four patients had high LDL-C levels. In those, 37 (6.7% of all CVD) patients were diagnosed as HhFH (82.9±15.4 years) according to FH guidelines. We compared lipid profiles between HhFH and the patients with hypercholesterolemia (DL: 68.3±15.0 years). The HhFH patients had significantly higher T-cho levels (243.8±32.3mg/dl, 224.1±15.0mg/dl, P=0.011) and LDL-C levels (172.5±24.2mg/dl, 152.3±8.2mg/dl, P<0.01) respectively than DL patients. Blood pressure, EF, TG, HDL-C, C, BNP, CRP were not significant differences between HhFH and DL. Furthermore, 32.4% of HhFH had the past history of CVD, just 27% of HhFH were treated with statins on admission, and also only 0.05% of HhFH had a definitive diagnosis at discharge.

Conclusions: Owing to severe underdiagnosis and under treatment of HhFH, there is an urgent need for diagnostic screening together with early and aggressive treatments of high-risk condition of future cardiovascular events.

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Cancer history is associated with delayed percutaneous coronary intervention and poorer angiographic results in patients with acute coronary syndrome

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Introduction: Demographic data shows that one in ten patients with myocardial infarction has a history of cancer. However, most of the trials in cardiovascular field exclude patients with oncologic comorbidities. The question whether concomitant cancer causes delay in treatment of acute coronary syndrome remains controversial. Moreover, it is not clear, whether angiographic results in cancer population are similar to the cancer-naive group. No guidelines have been established to address specific challenges inherent in this conjunction of conditions. Consequently, practitioners worldwide are left to their own devices in determining the optimal course of treatment in such cases, which may result in substandard outcomes.

Objective: To assess the influence of cancer history on percutaneous coronary intervention (PCI) delay and angiographic results in patients with myocardial infarction.

Methods: The following is a retrospective, single-center, cohort study of all 2643 patients hospitalized from January 2009, through December 2013 with ST-segment elevation myocardial infarction (STEMI) and non-ST-segment elevation myocardial infarction (NSTEMI). Out of those, we identified 97 patients (3.7%) with a history of active cancer. Door-to-baloon (D2B) and results of PCI (using TIMI Grade Flow scoring system) in these patients were compared with those of patients without a history of active cancer. Door-to-baloon (D2B) and results of PCI (using TIMI Grade Flow scoring system) in these patients were compared with those of patients without a history of active cancer.

Results: Post-matching baseline characteristics were similar between the groups. Cancer group was referred to the catheterization laboratory later than the concomitant cancer group (70 years old vs 59 years old), with a prevalence of males in the two groups (66.1% in ACS vs 57.5% in NO ACS).

Background: Acute hyperglycemia is a common feature of the early phase of an acute myocardial infarction (AMI) with or without diabetes, and is also associated with a poor prognosis. This study aimed to find the impact of dysglycemia on myocardial injury and the cardiac function.

Methods and results: From October 2005 to January 2016, a total of 1,593 consecutive patients with AMIs who underwent coronary intervention at Yeung-nam University Medical Center were enrolled. The patients were classified into five groups according to the serum glucose levels at admission: Group 1 (n=5), <80 mg/dl; Group 2 (n=634), 81–140mg/dl; Group 3 (n=492), 141–200 mg/dl; Group 4 (n=229), 201–260 mg/dl; and Group 5 (n=233), >261 mg/dl. The level of the cardiac markers representing myocardial inflammation and injury, including the NT-proBNP, maximal Troponin I, AST and WBC, had a positive linear relationship with the admission glucose, except in group 1. The left ventricular systolic function (ejection fraction) tended to decrease as the admission glucose increased, and further, the diastolic function (E/E’) ratio had a positive linear relationship with the admission glucose. Among 1593 patients, 69 died within 30 days. The 30-day mortality also increased as the admission glucose increased. The cut-off value for predicting the 30-day mortality was 202.5 mg/dl (AUROC 0.703, Sensitivity 0.623, Specificity 0.741, P<0.001).

Conclusions: Dysglycemia, especially hyperglycemia, appears to be associated with myocardial injury, and could be another adjunctive parameter for predicting mortality in patients with acute myocardial infarctions.

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The CENTURY Study

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Background: Chest pain is one of the leading symptoms of presentation in the Emergency Department, representing up to 5% of ED accesses.

Aim: Goal of this study is to describe the population of patients arriving in several Italian EDs complaining for chest pain suggestive of ACS, in order to evaluate the incidence of ACS in this ED population and the association between the presence of ACS and different clinical parameters and risk factors.

Methods and results: The CENTURY (CHEst paiN Italian Units emerGeny) is an observational prospective study conducted in 10 different Emergency Departments in Italy from the 1st January to the 31st December 2014. Patients with chest pain suggestive of acute coronary syndrome, on the basis of clinical judgement, were enrolled consecutively. More than 95% of the database fields of the CRF had to be completed for the statistical analysis, using univariate and multivariate methods. Centers collected data on 7310 patients; the statistical analysis was conducted on 6340 patients with the final diagnosis of ACS (24.6%) and NO ACS (69.1%). Patients with ACS were older than NO ACS patients (70 years old vs 59 years old), with a prevalence of males in the two groups (66.1% in ACS vs 57.5% in NO ACS). Risk factors included in the database (family history of CVD, personal history of CHD, personal History of CVD, current smoker, hypercholesterolemia, BMI, hypertension, diabetes, chronic renal failure) showed a significant statistical association (univariate analysis) with the final diagnosis of ACS (p less than 0.001). Interestingly 59.1% of ACS patients had ECG alterations at admission (ECG within 10 minutes from the arrival at ED) compared with 5.8% of NO ACS patients. The percentage of ECG equal to a previous ECG was 13.4% for ACS vs 20.4% for NO ACS.
To be underlined is the fact that 70.2% of NO ACS patients were discharged directly from ED after a few hours, and 21% within 36 hours. The multiple logistic regression analysis showed that six parameters were predictive for ACS: personal history of CHD (p less than 0.03), current smoke, hypertension, ECG alteration, BMI, spO2 (p less than 0.001).

Conclusions: The CENTURY is an observational study of patients with chest pain suggestive of ACS arriving to different EDs in Italy. While statistical analysis is influenced by less homogeneous data, this is the current situation in the Emergency Departments for chest pain patients.

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Preoperative Cardiac Troponin elevation in revascularized patients undergoing non-cardiac surgery

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Background: It is known that cardiac troponin provides prognostic information of all-cause death during perioperative period among patients undergoing non-cardiac surgery, but this hypothesis was not fully evaluated in the coronary revascularized patients either PCI or CABG.

Objective: To evaluate the association between preoperative high-sensitivity cardiac troponin I (hs-cTnI) level and mortality in the revascularized patients undergoing non-cardiac surgery.

Methods: During 2008 to 2015, a total of 521 surgery in the revascularized patients were analyzed. The primary endpoint was major adverse cardiac and cerebrovascular event (MACCE) during one year, defined as a composite of all-cause death, myocardial infarction, stroke, and repeat revascularization.

Result: Of the 521 patients, 441 (84.6%) had normal troponin and 80 (15.4%) had elevated troponin. In the multivariate analysis, the incidence of MACCE was not significantly different between two groups (11.1% vs 11.2%; HR, 1.02; CI95%, 0.50–2.07; p=0.97).

Conclusion: In the coronary revascularized patients who undergo non-cardiac surgery, preoperative elevation of hs-cTnI level was not associated with poor clinical outcomes.