An analysis of coronary angiography results and selected cardiac risk factors in patients with chest pain at Vilnius university hospital clinics

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Aims: Our aim were to describe the characteristics of patients with chest pain and negative troponin level who underwent coronary angiography.

Introduction: Chest pain is a common presenting symptom in emergency departments (ED) and there are many classical cardiac risk factors leading to acute coronary syndrome (ACS). Although, ACS is described by elevation of biochemical cardiac markers demonstrating myocardial injury. Despite that, some patients with typical symptoms undergo coronary angiography without troponin elevation.

Methods: A retrospective observational study was conducted from January till June 2018. Data randomly included patients admitted to the Emergency Department (ED) with chest pain as the presenting symptom, but no ST-elevation on initial ECG. The various characteristics were registered: age, sex, clinical data, etc. Heart score at admission was calculated. Patients were divided into two groups based on the high sensitivity cardiac troponin I (hs-cTnI): group 1 – troponin negative group – troponin was not elevated according to laboratory parameters according to sex, group 2 – troponin positive – troponin level was above normal value. Data was processed using R commander.

Results: A total cases of 202 patients with chest pain were analysed. Mean age was 66.6 (±12.42) years old with 55 % (n=111) patients being male and 45 % (n=91) female. Chest pain was classified as nonischemic in 87 patients (43,0%), undefined in 9 (4,5%) and ischemic in 106 patients (52,5%). Overall, 119 (58,9%) were admitted to hospital and 88 of these patients underwent coronary angiography. According to troponin level the patients were stratified into: group 1 – with negative hs-cTnI – 33 patients, group 2 – with positive hs-cTnI – 55 patients. In these groups results of coronary angiography and selected classical risk factors were analyzed. In both groups patients age was similar 66.9 vs 68.1 years old. Median hs-cTnI level in group 1 – 12,77 ng/l, group 2 – 3523,6 ng/l. Arterial hypertension frequency was 23 (69,7%) in patients in group 1 and 41 (74,55%) in group 2. Diabetes mellitus – 5 patients (15,2%) vs 10 (18,2%). Dislipidemia 17 (51,5%) vs 25 (45,5%). There was a significant difference in mean Heart score between groups – group 1 - 4,73, in group 2 - 7,16 points (p=0.00). The percentage of critical single and multivessel coronary stenosis did not differentiate both groups. 11 patients after coronary angiography underwent percutaneous coronary intervention and it count for 1/3 of patients with negative hs-cTnI.

Conclusions: Even though many clinicians in Emergency Department put their trust only in positive or negative high sensitivity troponin measurements, proper risk stratification and evaluation of patient’s risk factors are very important, as about 1/3 still can have stenosis in their coronary arteries and have no high sensitivity troponin elevation.