THE NOVEL ACOUSTIC DETECTION DEVICES OF CORONARY ARTERY STENOSIS AND NEW HANDY MARKERS OF CORONARY ARTERY DISEASE

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The guidelines say that patients with chest pain of intermediate probability for CAD need a noninvasive test as the first approach. The noninvasive test probably less expensive is the exercise electrocardiography (ECG) although with a low sensitivity (45-50%), even though there are non-invasive tests with higher sensitivity like the stress echocardiogram, coronary computed tomography angiography, nuclear stress test and so on. They had high cost and some of them require exposure to radiation. Akay and other authors found the range of frequency hertz associated with CAD and these acoustic signals are not audible to human ear with the standard stethoscope. Currently, there are acoustic detection devices (ADDs) for diagnosing CAD in the market approved by the Conformite Europeenne (CE) marking and the Food and Drug Administration (FDA). These novel ADDs can rule out CAD with a high negative predictive value (NPV) 91-96% but not good enough specificity 35-52%. New markers to diagnose CAD has come out, the Casablanca study four biomarkers (midkine, adiponectin, apo C-1, and kidney injury molecule-1) predicted CAD with high positive predictive value (PPV) 90% and also showed that patients without myocardial infarction that had high sensitive cardiac troponin I (hs-cTn) ≥6 ng/L had a PPV 72% to diagnose CAD. A novel ECG sign so-called fragmented QRS have a specificity 89% to diagnose myocardial scar. The mean platelet volume (MPV) is a parameter included in the routine blood test. High MPV has specificity 75% in patients with chest pain to diagnose the acute coronary syndrome. Hence, to the evaluation of patients with low and intermediate probability of CAD, we use the ADDs with these new markers of CAD, some non-invasive tests can be avoided, as well as better cost-effective decisions to referring a patient directly to coronary angiography could be taken.

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