Scores

# Prediction of subclinical coronary atherosclerosis in patients with high and very high cardiovascular risk

Pogosova N.[1]; Kachanova NP.[2]; Yufereva YM.[1]; Sokolova OY.[1]; Koltunov IE.[3]; Vygodin VA.[2]; Arutyunov AA.[1]

[1]National Medical Research Center of Cardiology, Moscow, Russian Federation
[2]National Center for Preventive Medicine, Moscow, Russian Federation
[3]Peoples Friendship University of Russia (RUDN University), Moscow, Russian Federation

**Funding Acknowledgements:** Type of funding sources: None.

**Background:** Coronary atherosclerosis has a long subclinical period. It's early detection may offer a possibility of timely initiation of preventive interventions

**Purpose:** To develop a diagnostic rule for detection of patients (pts) with high probability of subclinical atherosclerosis among those with high or very high cardiovascular (CV) risk.

**Methods:** This cross-sectional study enrolled 52 pts (32 men [62%]), aged 40 to 65 years [mean age 54.6 ± 8.0]) with high or very high CV risk (5-9 and ≥10% by The Systematic Coronary Risk Estimation Scale [SCORE], respectively). All participants underwent cardiac computed tomography (CT) angiography and calcium scoring. Traditional risk factors (RFs) (family history of premature CVD, smoking, overweight/obesity and abdominal obesity, hypertension, type 2 diabetes mellitus, lipids parameters (total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, triglycerides) and lipids-related markers (apolipoprotein A1, apolipoprotein B, ApoB/ApoA1 ratio), biomarkers of inflammation (high-sensitivity C-reactive protein [hs CRP], fibrinogen), indicator carbohydrate metabolism (glucose), ankle-brachial index, stress-test, carotid plaques according to ultrasound were evaluated in all pts. Psychological RFs were evaluated using Hospital Anxiety and Depression Scale and DS-14 for type D personality.

**Results:** All pts were divided into 2 groups according to the CT angiography results: pts in the main group (n = 21) had any non-obstructive lesions or calcium score >0, pts in the control group (n = 31) had intact coronary arteries. The groups did not differ in age or gender. 26 multiple linear logistic models for any subclinical atherosclerosis were developed based on obtained diagnostic features. Taking into account R-square = 0.344 (p = 0.0008), the best fitting model was follows:

subclinical coronary atherosclerosis= -1.576 + 0.234 x SCORE ≥5% + 0.541 x hs CRP >2 g/l + 0.015 x heart rate (bpm) + 0.311 family history of premature CVD.

The developed algorithm had sensitivity of 63% and specificity of 80%.

**Conclusions:** The created diagnostic model diagnostic model suggests the presence of subclinical coronary atherosclerosis in patients with high / very high CV risk with a high degree of probability. This easy-to-use method can be used in routine clinical practice to improve risk stratification and management choices in high-risk pts.