to the 99th percentile for hs-cTnT. Hence the diagnostic changes in women and men induced by sex-specific cutoff values hs-cTnIneed to be explored in more detail to corroborate whether also uniform values of hs-cTnI should remain the standard of care.

Methods: In an ongoing prospective, diagnostic, multicenter study conducted at 9 emergency departments (ED), we evaluated patients presenting to the ED with suspected MI. Patients presenting with ST-Segment-Elevation MI were excluded. The final diagnosis was centrally adjudicated by 2 independent cardiologists using all available information, including measurements of serial hs-cTnI blood concentrations twice: once using the uniform 99th percentile cutoff value level of 26.2 ng/L and once using sex-specific 99th percentile values of hs-cTnI (women, 16 ng/L; men, 34 ng/L). The clinical impact of using sex-specific cutoffs was quantified by assessing diagnostic reclassifications when using sex-specific values.

Results: Among 3789 patients, 1230 were women (32.5%) and 2559 men (67.5%). Median (interquartile range) age was 68 (54–78) and 59 (47–72) years, respectively. With the use of the uniform cutoff value, 159 women (12.9%) and 431 men (16.8%) received a final diagnosis of MI. Among these, at ED presentation, levels of hs-cTnI were already above the uniform cutoff value in 474 patients (sensitivity, 78.0% [95% CI, 70.7–84.2] in women vs 81.2% [95% CI, 77.2–84.8 in men]; specificity, 91.5% [95% CI, 89.7–93.1] in women vs 92.1% [95% CI, 90.9%–93.2%] in men). After readjudication using sex-specific 99th percentile values, diagnostic reclassification regarding MI occurred in only 5 patients: 0.13% (95% CI, 0.04–0.30) of all patients and 0.84% (95% CI, 0.27–1.96) of patients with MI. The diagnosis in 1 woman was upgraded from unstable angina to MI, and the diagnosis in 4 men was downgraded from MI to unstable angina. Figure.
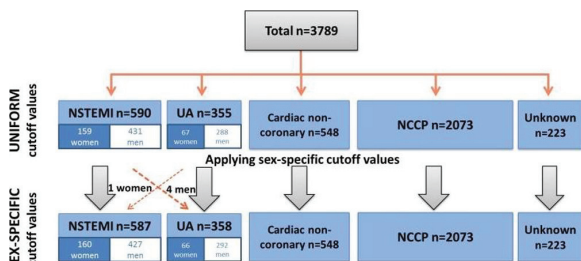

Figure 1

Conclusions: The uniform 99th percentile should remain the standard of care also when using hs-cTnI values for the diagnosis of MI.

P5596

Circulating soluble Klotho is inversely associated with coronary artery calcification evaluated by three-dimensional intravascular ultrasound

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Background: Klotho gene has been recognized as an aging-suppressor gene. Among the Klotho family, only α-Klotho has transmembrane form and soluble form. The transmembrane α-Klotho protein serves as an obligate co-receptor for fibroblast growth factor 23 (FGF23). Soluble form of α-Klotho acts as a vasculoprotective hormone, possibly by improving endothelial function and inhibiting vascular calcification. We hypothesized that soluble α-Klotho might serve as a biomarker of coronary artery calcification (CAC).

Purpose: The aim of this study was to investigate whether serum α-Klotho levels were associated with CAC in coronary culprit lesion using three-dimensional intravascular ultrasound (IVUS).

Methods: We analyzed CAC in 75 non-dialysis patients (61 males, 68±9 years) with stable angina pectoris who underwent percutaneous coronary intervention (PCI) following IVUS imaging. Arc and length of each calcium within the culprit lesion was measured by IVUS. The main outcome measure was the calcium index which was calculated as total calcium length/lesion length × maximal calcium arc/360°. Less CAC was defined as calcium index <0.041 of the first quartile value. Serum α-Klotho and FGF23 were measured before PCI. Patients were divided into the following two groups according to median α-Klotho level: low-Klotho (n=37, ≤460 pg/mL) and high-Klotho (n=38, >460 pg/mL).

Results: Compared with patients with high-Klotho, those with low-Klotho had lower estimated glomerular filtration rate (eGFR) (55±16 vs. 69±20 mL/min/1.73 m^2, p<0.001), higher FGF23 levels (67±41 vs. 51±24 pg/mL, p=0.010), and higher calcium index (0.24±0.23 vs. 0.17±0.21, p=0.043). Serum α-Klotho levels correlated significantly with eGFR (r=0.27, p=0.019), FGF23 (r = -0.24, p=0.038), and calcium index (r = -0.31, p=0.006). Notably, a correlation between serum α-Klotho and calcium index was more pronounced at analysis in patients with eGFR <60 mL/min/1.73 m^2 (r = -0.52, p<0.001). Multivariate logistic regression analysis showed that high-Klotho was a significant independent factor associated with less CAC (odds ratio: 5.09, 95% confidence interval: 1.24 to 20.92, p=0.024) after adjusting for confounders including age, gender, hypertension, hypercholesterolemia, diabetes, eGFR, calcium-phosphorus product, and FGF23 level.

Conclusions: Using three-dimensional IVUS to assess vascular calcification, an independent, inverse relationship was observed between serum α-Klotho level and CAC in non-dialysis patients with stable angina pectoris who underwent PCI.

P5597

Increased adipose tissue microRNA-133a gene expression in patients with coronary artery disease: the effect of body mass index

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Purpose: MicroRNAs (miRNAs) are short noncoding RNAs involved in posttranscriptional regulation of gene expression and influence many cellular functions including glucose and lipid metabolism. Experimental studies have shown that miRNA-133a is a major regulator of adipose cells differentiation. We investigated miRNA-133a gene expression levels in the white adipose tissue of patients with and without coronary artery disease (CAD).

Methods: Patients undergoing coronary angiogram were participated in the study. We included 26 patients with CAD (16 male, 68±11 years old) and 17 patients without CAD (10 male, 67±8 years old). Subcutaneous white adipose tissue biopsies were obtained from the site of paracentesis before the procedure and analyzed for miRNA-133a gene expression by RT-quantitative PCR.

Results: Adipose tissue analysis revealed increased miRNA-133a gene expression levels in obese patients with CAD compared to those without CAD. More specifically, miRNA-133a gene expression levels were 248±112 in patients with CAD versus 82±87 in patients without CAD (p<0.01). Notably, a significant correlation was found between miRNA-133a gene expression levels and patients' body mass index (r=0.053, p<0.01) in all participants.

Conclusions: There is a differential miRNA-133a gene expression in adipose tissue of patients who exhibit or do not exhibit CAD and this is strongly correlated with the body mass index. Our findings may have implications in the pathophysiologic link between obesity and atherosclerosis and should be further investigated.

P5598

Gender difference in the development of ischemic heart disease in emergency workers of the Chernobyl accident

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Objectives: Since women accounted for only 8.7% of the total number of Chernobyl emergency workers (EW), the radiation effect on cardiovascular system was previously studied mainly in men. So the goal of current investigation was to determine the development of ischemic heart disease (IHD) in men and women exposed to ionizing radiation.

Methods: The study included 598 EW of 1986 year (472 men and 126 women) who had no signs of cardiac pathology during they took part in elimination of consequences caused by the Chernobyl accident. For that time women's age was 41±6.9 years, but men 37.8±8.5 years (p=0.011). The female group was also significantly older than the male at the time of the examination (69.1±7.2 versus 63.7±10.4, p=0). Patients of both groups in 2012–2016 after admission in our hospital had cardiologist examination, electrocardiography, daily monitoring of electrocardiogram, echocardiography.

Results: At the time of examination IHD in women was more often combined with arterial hypertension (94.4% compared to 87.7% in men, p=0.001), diabetes mellitus (27.0% vs. 23.9% in men, p=0.828), alimentary obesity (57.1% vs. 39.2%, p=0) and hypercholesterolemia (66.7% versus 60.4%, p=0.239). In both groups, the portion of patients with stroke was practically equal (9.5% and 9.7%) as well as with blockade (2.4% and 2.3%), atrial fibrillation (16.7% and 16.5%), and ventricular extrasystoles (7.9% and 7%). Men were more likely to have supraventricular arrhythmias (13.3% and 1.6%, p=0.042) and higher number of smokers (40.9% and 1.6%, p=0).

It was shown that 25% of all male EW developed IHD in 11.7±0.5 years after irradiation, while the same number of EW-women after 15.5±1.3 years. Exactly half of male group had the diagnosis of IHD after 18.7±0.8 years while women after 21.6±0.7 years. After 24.7±0.4 and 26.8±0.5 years, IHD developed in 75% of men and women, respectively. Kaplan-Meier survival analysis showed high reliability of differences in the development of IHD in two examined groups (log-rank test: χ2 = 10.001, p=0,001). The median survival rate fell on the age of 57±0.6 years for men and 61.4±0.9 years of women.

Conclusions: The gender specific features of IHD development in EW consisted in its earlier term of onset after irradiation in men than in women. Men developed IHD at younger age than women despite the presence of a greater number of people with risk factors such as hypertension, diabetes mellitus, hypercholesterolemia and obesity.