

## Association of biomarkers of oxidative stress, stress glycaemia and glycated haemoglobin with Coronary Artery Disease

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**Introduction:** Reactive oxygen species (ROS) are responsible for generalized oxidation which results in cell dysfunction, necrosis or apoptosis. Assessment of oxidative stress markers could modify prevention, risk stratification and treatment of patients with coronary artery disease (CAD). The aim of this study was to evaluate association of biomarkers of oxidative stress, stress glycaemia and glycated hemoglobin (HgbA1c) with CAD.

**Methods:** Cross-sectional observational study was performed in hospitalized CAD patients. Beside their demographics, risk factors and co-morbidities, lipoprotein profile, glycemic profile and oxidative stress biomarkers: malondialdehyde (MDA) and hydro peroxide (HP), and antioxidant enzymes: superoxide dismutase (SOD), CATALASE and glutathione peroxidase (GPS) were measured. Comparison was performed between CAD patients and healthy controls, patients with acute coronary syndrome (ACS) versus chronic CAD (inside the group: between PCI revascularised and stable post MI patients) and ACS patients (STEMI, NSTEMI and unstable angina).

**Results:** Study included 300 patients, (64.7% males and 36.3% females), mean age of  $62.9 \pm 11,2$  years. ( $p=ns$  between genders for age). 187 (62.3%) were ACS and 113 (37.7%) chronic CAD patients. There was no statistical significant difference in the risk profile between the CAD groups. Patients with CAD had significantly higher pro-oxidative and significantly lower anti-oxidative levels of biomarkers (Table 1), as compared with healthy volunteers. Statistically significant differences were observed for HP and SOD between ACS and HCAD group. In HCAD group, revascularized patients demonstrated higher oxidative stress as compared to stable post

MI patients. In ACS patients statistical significant intergroup difference was registered, but not pointing to the single type of ACS. ACS patients had also higher levels of stress glycaemia and HgbA1c. Significant positive correlation were found for HgbA1c and stress glycaemia with MDA ( $r=,154^{**}$ ,  $p=0,008$ ;  $r=,254^{**}$ ,  $p=0,024$  respectively).

**Conclusion:** CAD patients demonstrated pronounced oxidative stress when compared to healthy controls. Respectively, ACS patients had higher oxidative stress as compared with chronic CAD patients, where PCI vascularized sub-group of patients performed worse than stable post MI patients. Higher oxidative stress activity was linked to worse glycemic control as measured through stress glycaemia and HbA1c

### Biography

Marija Vavlukis has completed her PhD at the age of 44 years from Ss' Cyril and Methodius University, Medical Faculty, Skopje, Republic of Macedonia. She is Head of ICCU at the University Clinic of Cardiology, National coordinator of The American-Austrian Foundation-Open Medical institute, national champion in ACCA of The European Society of Cardiology, FESC since 2016. She is also a Professor at faculty of Medical Sciences at Goce Delcev University, mentoring PhD students and residents in cardiology. She has published more than 60 papers in reputed journals, participated at national/international congresses, symposiums, workshops, other meetings with plenary or oral presentations in more than 40 occasions, and authored or coauthored more than 150 publications. She has been serving as an editorial board member and reviewer in several Journals of repute