

Joint Event on

# European Heart Congress & Traditional Medicine Congress

October 23-24, 2019 | Prague, Czech Republic

## Blood glucose status mediates microvascular dysfunction in patients referred for positron emission tomography

**Introduction:** Diabetes is an established risk factor for coronary artery disease. In addition, hyperglycemia has been shown to be associated with increased markers of vascular inflammation and myocardial perfusion defect on contrast echocardiography. However, data regarding the effect of blood glucose level (BS) on myocardial blood flow (MBF) on Positron emission tomography (PET) is limited. We sought to examine the effect of BS and glycosylated hemoglobin (HbA1C) on MBF and coronary artery reserve (CFR) measured by vasodilator PET.

**Methods:** All hospitalized consecutive patients referred to clinically indicated PET between May 2011 and December 2017 who had fasting blood glucose in the day of the test and HbA1C within three months of the test were included in the analysis. Patients with known CAD, ischemia (sum difference score > 2), scar (sum stress score >3), transient ischemic dilatation and abnormal resting left ventricular function were excluded. MBF was measured by single compartment method and CFR is calculated as stress MBF/rest MBF.

**Results:** A total of 184 patients (mean age  $60 \pm 10$ , 50% female) were included. 68 patients had HbA1C above 7 mg/dl. Patients with elevated HbA1C were older and have higher prevalence of cardiac risk factors ( $p < 0.001$ ). Using spearman correlation, there was a weak, but statistically significant correlation between CFR and HbA1C ( $r = 0.2199$ ,  $p = 0.0027$ ) and fasting BS ( $r = 0.178$ ,  $p = 0.0596$ ) However, there was no correlation between peak MBF with HbA1C ( $r = 0.0614$ ,  $p = 0.4079$ ) or fasting blood sugar ( $r = 0.0863$ ,  $p = 0.3589$ ). Using multivariate linear regression, the correlation between HbA1C and CFR was significant after adjusting for confounders (Beta=0.366,  $p = 0.022$ )

**Conclusions:** Coronary artery circulation is affected by the glucose status in the blood. Whether BS should be corrected for to improve the accuracy of CFR by PET is yet to be determined.

### Biography

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