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**Objectives** The aim of the present study to investigate the impact of the different glycemic states on PWV, IMT and CAP in Patients with coronary heart disease.

**Methods** We studied 127 subjects coronary heart disease. Participants were divided into three metabolic groups: normal glucose regulation (NG; n=31), impaired glucose tolerance (IGT; n=31) and type-2 diabetes mellitus (DM2; n=66). Vascular function and structure was estimated by pulse wave velocity (PWV), intima media thickness (IMT) and central artery pressure (CAP).

#### Results

1. The IGT and DM groups had a higher PWV value as compared with the NGT group ( $p=0.041$ ,  $p<0.001$ ). The IGT and DM groups had a higher IMT value as compared with the NGT group ( $p=0.002$ ,  $p<0.001$ );
2. In a multiple linear regression analysis, age ( $\beta=0.31$ ,  $p=0.002$ ), 2-h postload glucose ( $\beta=0.43$ ,  $p=0.025$ ), and systolic blood press ( $\beta=0.20$ ,  $p<0.001$ ) were found independently related to PWV; age ( $\beta=0.29$ ,  $p=0.007$ ), 2-h postload glucose ( $\beta=0.37$ ,  $p=0.001$ ), and systolic blood press ( $\beta=0.20$ ,  $p<0.001$ ) were found independently related to IMT; systolic blood press ( $\beta=0.69$ ,  $p<0.0001$ ), AI ( $\beta=0.26$ ,  $p<0.001$ ), and diastole blood press ( $\beta=0.16$ ,  $p=0.028$ ) were found independently related to CAP.

**Conclusions** Vascular function dysfunction and structure damage is a determinant of aortic stiffness in diabetic and impaired glucose tolerance patients with coronary heart disease but normal glucose tolerance patients with coronary heart disease. PWV was proven useful for detecting vascular disease as a non-invasive and convenient test for abnormal glucose metabolism of patients with coronary heart disease.