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**BACKGROUND:** Coronary artery calcifications (CAC) scoring assessed by the Agatston score has shown an excellent prognostic value in large studies, particularly in diabetic patients, with a very low rate of cardiovascular events in patients with a zero Agatston score. Moreover, recent studies have suggested that high-sensitive cardiac troponin I (hs-cTnI) and brain natriuretic peptide (BNP) may be useful for detecting subclinical atherosclerosis, especially in diabetic patients. However, the link between hs-cTnI/BNP and the Agatston score has not been investigated in this population.

**PURPOSE:** The aim of this study was to investigate if hs-cTnI and BNP can bring additional value to predict zero Agatston score in patients with diabetes mellitus in addition to usual risk factors.

**METHODS:** Between 2015 and 2019, CAC score was prospectively performed in consecutive patients with diabetes mellitus with high cardiovascular risk. Patients with symptoms or known coronary artery disease were excluded. Within 24h from CT exam, peripheral blood samples were taken to measure hs-cTnI and BNP. The relationship between serum hs-cTnI/BNP concentrations and zero Agatston score was evaluated using univariate and multivariate binomial models. 77 variables have been used to build the model. The implication of hs-cTnI and BNP in this multivariate model was evaluated using nested models associated with Chi-squared test of independence.

**RESULTS:** A total of 844 patients with diabetes were enrolled (61 ± 7 years, 57% men, mean diabetes duration 18 years). In this population, 294 (35%) had a zero Agatston score, 253 (30%) an Agatston score from 1 to 100, 161 (19%) from 101 to 400, and 136 (16%) higher than 400. In univariate analysis, hs-cTnI and BNP concentrations were associated with a zero Agatston score (respectively OR, 2.63 [95% CI, 1.51-5.01];  $p < 0.001$  and OR, 1.09 [95% CI, 1.01-1.22];  $p = 0.03$ ). In multivariate analysis, hs-cTnI and BNP concentrations were associated with a zero Agatston score (respectively OR, 2.38 [95% CI, 1.51-4.76];  $p = 0.009$  and OR, 1.18 [95% CI, 1.07-1.32];  $p = 0.001$ ). Among the 77 variables, the multivariate model including age, gender, smoking, dyslipidaemia, duration of the diabetes, arterial hypertension, presence of diabetic neuropathy, hs-cTnI and BNP concentrations, significantly discriminated the zero Agatston score (AUC = 0.81;  $p < 0.001$ ). The most discriminant threshold was  $\leq 3\text{ng/l}$  for hs-cTnI and  $<17\text{ng/l}$  for BNP. In nested models, both hs-cTnI and BNP brought information to this multivariate model to predict a zero Agatston score (respectively  $p = 0.003$  and  $p < 0.001$  to the Chi-squared test). Moreover, removing hs-cTnI and BNP from the model results in a significant reduction in model performance (AUC = 0.79;  $p = 0.004$ ).

**CONCLUSIONS:** Cardiac biomarkers hs-cTnI and BNP are associated with a zero Agatston score, which is correlated with a very low risk of cardiovascular events in asymptomatic patients with diabetes mellitus.

Abstract Figure. ROC curve to predict zero Agatston score

