Introduction: Metabolic syndrome (MetS) is defined as an association between diabetes, hypertension, obesity and dyslipidemia and an increased risk of cardiovascular disease. Mitral annular calcification (MAC) is associated with several cardiovascular disorders, including coronary artery disease, atrial fibrillation (AF), heart failure, ischemic stroke and increased mortality. The CHA2DS2-VASc score is used to estimate thromboembolic risk in AF. However, the association among MAC, MetS and thromboembolic risk is unknown and was evaluated in the current study.

Methods: The study group consisted of 94 patients with MAC and 86 patients with MetS. Patients were divided into two groups: those with and those without MAC.

Results: Patients with MAC had a higher MetS rate (P<0.001). In patients with MAC, the CHA2DS2-VASc scores and the rate of cerebrovascular accident and AF were significantly higher compared to those without MAC (P<0.001, for both parameters). The results of the multivariate regression analysis showed that history of smoking, presence of MetS and high CHA2DS2-VASc scores were associated with the development of MAC. ROC curve analyses showed that CHA2DS2-VASc scores were significant predictors for MAC (C-statistic: 0.78; 95% CI: 0.706-0.855, P<0.001). Correlation analysis indicated that MAC was positively correlated with the presence of MetS and CHA2DS2-VASc score (P<0.001, r=0.264; P<0.001, r=0.490).

Conclusion: We have shown that CHA2DS2-VASc score and presence of MetS rates were significantly higher in patients with MAC compared without MAC. Presence of MAC was correlated with CHA2DS2-VASc score, presence of MetS, AF and left atrial diameter and negatively correlated with left ventricular ejection fraction.