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MAJOR ADVERSE CARDIAC EVENTS AND CORONARY PLAQUE CHARACTERISTICS

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Objectives Major adverse cardiac events (MACE) often occur suddenly resulting in high mortality and morbidity. Analysing the characteristics of coronary plaque by Coronary CT Angiography (CCTA) may help forecasting the MACE.

Methods The patients who underwent CCTA from Jan.2008 to Feb.2010 were consecutively enrolled in the study. The hospital data base was screened for patients who later developed acute ST elevated myocardial infarction (STEMI) or non ST elevated acute myocardial infarction (NSTEMI) or cardiac death. The definition of the plaque score as follow: 1. Minor plaque 1 point; 2. Moderate plaque 2 points; 3. Severe localised stenosis 3 points; 4.The erosive plaque 5 points; 5. Calcification 1 point; 6. DES 5 points. 7. Plaque with positive remodeling 3 points. 8. Complete occlusion 3 points; 9. Diffused moderate lesions 2 points. Two-way analysis of variance was performed.

Results A total of 8557 consecutive cases of CCTA were performed in the institution. Among them 25 patients was found to develop MACE after CCTA, including 6 cases of deaths, 2 cases of heart failure, 11 cases of STEMI and 6 cases of NSTEMI. One way ANOVA analysis showed that advanced age, AF, past history of PCI, low Hb, tachycardia and high Grace Score contributed to death and heart failure. The differences were significant, $p < 0.05$. The patients who had erosion plaques and high degree localised lesions had high likelihood of developing MACE, 95% CI 0.6472 to 1.538., $p = 0.000$. The death and heart failure had the highest plaque score, 95% CI 0.4882 to 1.379, $p = 0.000$.

Conclusions The plaque characteristics identify high risk patients.