Abstract: **P6380**

The impact of coronary artery disease to predict mortality and neurological outcome in post-cardiac arrest patients

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Background; Some studies reported that performing coronary angiography (CAG) for patients with out-of-hospital cardiac arrest (OHCA) is effective for the prognosis and neurological outcome. However, the impact of complexity of coronary artery disease (CAD) on CAG findings has not been evaluated sufficiently.

Purpose; We sought to investigate the complexity of CAD to predict the prognosis and neurological outcome in patients with OHCA.

Methods: A total of 1382 out-of-hospital cardiac arrest patients were transferred to our critical care center, of which 252 cardiovascular arrest patients achieving the return of spontaneous circulation (ROSC) were extracted from the institutional consecutive database between January 2015 and December 2018. Among those patients, we performed CAG for 160 patients. To predict mortality in hospital and neurological outcome at 30 days, we investigated basic patients’ characteristics, pre-hospital information, coronary anatomical angiographical findings.

Results: Ventricular fibrillation (VF) (P=0.001), younger age (P=0.007), pre-hospital ROSC (P<0.001) and normal coronary artery on CAG findings (P=0.014) were associated with low 30-days mortality in hospital. VF (P=0.003), younger age (P=0.004), pre-hospital ROSC (P<0.001), bystander cardiopulmonary resuscitation (CPR) (P=0.043) and normal coronary artery (P=0.001) were associated with good neurological outcome (cerebral-performance-category (CPC) =1 or 2) at 30days. We further investigated 100 patients who had any coronary artery stenosis on CAG findings. Among these patients, 55 patients (55.0%) had multi-vessel coronary artery disease and 29 patients (29.0%) had at least a chronic total occlusion lesion. VF survivor (P=0.035), without previous history of CAD (P=0.008), pre-hospital ROSC (P=0.013), and Syntax score (P=0.002) were associated with low 30-days mortality. In multivariate analysis, Syntax score (OR 0.94; 95% confidence interval (CI) 0.88-0.99; P=0.042) was independent predictor of mortality. Bystander CPR (P=0.001), pre-hospital ROSC (P<0.001) were associated with good neurological outcome at 30 days. Bystander CPR (OR 5.92; 95% CI 2.01-17.5; P<0.001) and pre-hospital ROSC (OR 9.22; 95% CI 3.34-25.5; P<0.001) were predictive for good neurological outcome.

Conclusions: OHCA patients with any coronary stenosis had high mortality and bad neurological outcome in comparison with those who had normal coronary arteries. OHCA patients with CAD had complex lesions such as multi-vessel disease or chronic total occlusion lesions. The coronary complexity in patients with OHCA was a predictor of in-hospital 30-days mortality. However, pre-hospital care such as bystander CPR and pre-hospital ROSC were the most important to achieve good neurological outcome at 30 days in the present study.