

Predictors of Cardiogenic Shock and Mortality Among Patients With AMI, Tertiary Center Experience

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OBJECTIVE

Our study aimed to assess predictors of cardiogenic shock and mortality among patients with acute myocardial infarction

METHODS AND RESULTS:

This is a retrospective, single centre study conducted at KAMC, Makkah during 2019-2020. All AMI patients during this study period were divided into two groups CS group and non-CS group. The two groups were compared using t-test and chi-squared test for continuous and categorical data respectively.

This study cohort included 3074 AMI patients. 132(4%) patients had cardiogenic shock. CS group tended to have higher ages than non-CS group (57 ± 11.8 vs. 56 ± 11.9 , $p=0.06$, in CS and non-CS patients respectively). Pilgrims with AMI were more complicated by CS than non-pilgrims (45% vs. 32%, $p=0.004$). Whereas shocked patient had significantly lower BMI (obesity paradox) (27 ± 4.7 vs. 27.9 ± 5.2 , $p<0.05$, for BMI in CS and non-CS patients respectively) There was no significant difference ($p>0.05$ for all) between both groups regarding sex, predisposing factors for CAD including smoking, diabetes, hypertension, dyslipidaemia and CVA.

Serum creatinine pre and post Cath had significantly higher values in CS group, the same had serum troponin level on admission and peak values. While CS patients had significantly lower levels of potassium and haemoglobin on admission and discharge with more percentage of haemoglobin drop ≥ 3 gm/dl among CS patients (20% vs. 5%, $p<0.001$).

Contrast volume, flurotime and radial approach

during coronary angiography was significantly higher in CS group. Although there was no significant difference between groups regarding thrombus aspiration and tirofiban infusion. CS patients had highly significant more complex CAD in the form of multivessel, LM affection (28% vs. 15%, $p<0.001$ for MVD and 8% vs. 3% $p=0.001$ for LM) and consequently significant higher number of intracoronary stents displacement.

Subsequently, CS patients had highly significant ($p<0.001$ for all) increase in incidence of AMI complications including pulmonary oedema, ventilation and cardiac arrest but post-MI ejection fraction was significantly lower in CS patients (31 ± 13.6 , vs. 41 ± 10.4 , $p<0.001$). There was highly significant increase in-hospital mortality in CS patients (2% vs 30%, $p<0.001$). Cardiac arrest and haemoglobin drop ≥ 3 gm/dl were significantly independent predictors of cardiogenic shock in patients with AMI ($p=0.001, 0.01$). Age, female gender and diabetes were found to be the independent predictors for in-hospital mortality among our patients.

CONCLUSIONS:

Cardiac arrest and haemoglobin drop ≥ 3 gm/dl were detected to be the only significant independent predictors of cardiogenic shock in patients with AMI, so much attention should be directed to prevention, early detection and treatment in both situation with the outstanding improvement in the strategies for AMI management. Age, female gender and diabetes were found to be the independent predictors for in-hospital mortality among our patients.

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