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Acute Coronary Syndromes

INCIDENCE OF TYPE 5 MYOCARDIAL INFARCTION BY THE THIRD UNIVERSAL DEFINITION

Poster Contributions

Poster Sessions, Expo North

Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

Session Title: STEMI Topics

Abstract Category: 1. Acute Coronary Syndromes: Clinical

Presentation Number: 1171-203

Authors: *Shirjel Alam, Nick Spath, Marc Dweck, Anoop Shah, Scott Semple, Graham Mckillop, Saeed Mirsadraee, Renzo Pessotto, Vipin Zamvar, Nicholas Mills, David Newby, Peter Henriksen, University of Edinburgh, Edinburgh, United Kingdom*

Purpose: A type 5 myocardial infarction is currently defined when troponin values >10 times the 99th percentile upper reference limit occur during the first 48 hours following coronary artery bypass grafting (CABG), rising from a normal baseline troponin value. In addition there must be, either (i) new pathological Q waves or new LBBB, or (ii) angiographically documented new graft or new native coronary artery occlusion, or (iii) imaging evidence of new loss of viable myocardium or new regional wall motion abnormality. We recorded the incidence of type 5 myocardial infarction using a highly sensitive troponin I assay, ECG and cardiac MRI.

Methods: 52 on-pump CABG surgery patients were recruited. Patients underwent pre and post-operative MRI scanning to assess for wall motion abnormalities and late gadolinium enhancement volume. Pre and post-operative ECGs were analysed as well as serum troponin levels at 5 timepoints over 48 hours. MRIs were analysed by two independent observers.

Results: 52 patients were scanned pre-operatively and 46 returned for post-operative scanning. 2 patients died due to myocardial infarction and a further 1 patient was unable to be scanned due to myocardial infarction and renal failure. 2 patients were unable to be scanned due to post-operative respiratory compromise. 1 patient dropped out of the study but was in good health. A rise of troponin value >10 times the 99th percentile upper reference limit during the first 48 hours post-operatively was observed in all patients. There were 7 patients who had evidence of new myocardial infarction by late gadolinium enhancement, but none of these had diagnostic ECG changes. There were 10 patients fulfilling the universal definition for type 5 myocardial infarction. The average pre-operative gadolinium enhancement was 4.85g and ejection fraction was 61.81. Post-operatively these values were 5.46 and 59.69 respectively. Post-operative ejection fraction was reduced by 5-10% in 13 patients, and >10% in 3 patients. ECG confirmed myocardial infarction in the 3 patients in whom post-operative scanning was not possible.

Conclusion: By the new definition, 20% of patients undergoing on-pump CABG were diagnosed with type 5 myocardial infarction.