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Prolonged ICU Stay After Cardiac Operations

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Introduction: Clinical profile and post-operative events after open-heart surgery often dictate a prolonged (>30 days) stay in the intensive care unit. We examined the clinical, surgical, and post-operative profile of patients with prolonged ICU stay, to try and determine predictors for prolonged ICU stay and operative mortality.

Methods: Between 1993 and 2009, 5961 patients underwent cardiac surgery in our department. Of these, 155 (2.6%) had an ICU stay greater than 30 days (study group). A retrospective analysis was performed to compare these patients to those under 30 days (control) to try and determine predictors for adverse outcomes.

Results: Study group patients were older, had more extensive co-morbidity as well as more advanced cardiac morbidity. Predicted (logistic Euroscore) and observed mortality was 25% and 48% compared to 9% and 5% for the study group and control group respectively. By multivariate analysis, clinical predictors for prolonged ICU stay were female gender, COPD, re-operation, non-pure CABG surgery ($p<0.0001$). Stroke and sepsis were the strongest post-operative events ($p<0.0001$). Predictors for mortality by multivariate analysis were critical pre-operative state, female gender, and renal failure ($p<0.0001$). The main cause of death was non-cardiac in the study group and cardiac in the control group ($p<0.0001$).

Conclusions: Patients requiring prolonged ICU stay have more severe cardiac and non-cardiac morbidity. Mortality in these patients is high, and higher than predicted by the Euroscore. Many of the predictors for mortality in these patients are not expressed in the Euroscore. Modes of death were different in these patients compared to those with a short ICU stay.