

FAST-TRACK CARDIAC SURGERY IN VETERANS: HOW WE IMPROVED EXTUBATION TIMES

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Background: Prolonged mechanical ventilation in cardiac patients is associated with a wide variety of multisystem complications, which are associated with an increased length of time in the ICU and an overall increase in the length of hospital stay. At the Southern Arizona Veterans Affairs Health Care System (SAVAHCS), prolonged ventilation times not only lead to complications but also prevent us as surgeons from serving a larger patient population. If we cannot extubate our patients early and mobilize them, we cannot operate on other patients till beds are available. In recent years, we have attempted to improve our extubation times in order to improve the flow of patients through our ICU. We conducted a retrospective chart review to evaluate our protocol changes and herein present our methods for improving our extubation times.

Methods and Materials: We retrospectively reviewed the charts of 574 SAVAHCS patients who underwent coronary artery bypass from January 2003 through June 2007. The demographic and medical variables we assessed included age, American Society of Anesthesiology (ASA) score, NYHA classification, and degree of left ventricular dysfunction (1-6), of coronary artery disease (0-3), and of chronic obstructive pulmonary disease (0,1). In addition, we assessed intraoperative variables including ischemic times and number of grafts. To examine the effect of our protocol changes on extubation times we performed uni- and multivariate analysis.

Results: The mean extubation time in group 1 (*before* protocol changes) was significantly longer than in group 2 (*after* our protocol changes): group 1, 669 minutes (standard error of the mean [SEM] 32 minutes; group 2, 285 minutes (SEM, 25 minutes) ($p < 0.01$). In multivariate analysis, changes in the mean ASA score ($p = 0.157$) and the mean degree of coronary artery disease ($p = 0.451$) did not contribute to our improved extubation times. But, changes in the mean ischemic times ($p = 0.001$) and the presence of COPD did contribute to our improved extubation times.

Conclusion: Implementation of our fast-track protocol significantly improved extubation times.