

A COMPARATIVE ANALYSIS OF GOLDMAN'S CARDIAC RISK INDEX, GUPTA'S CARDIAC RISK INDEX AND REVISED LEE'S CARDIAC INDEX IN PREDICTING PERI-OPERATIVE CARDIAC COMPLICATIONS AMONG ELDERLY PATIENTS UNDERGOING ELECTIVE NON-CARDIAC SURGERY

Gilbert G. Cruz; Raul E. Ramboyong

ABSTRACT

BACKGROUND: Cardiovascular complications are important cause of morbidity with major non-cardiac procedures especially in the elderly population. Risk stratification is important in preventing perioperative complication. One of the most commonly used tools for clinical risk stratification prior to non-cardiac surgery is the Cardiac Risk Index. This study aims to determine which Cardiac Risk Index (GOLDMAN, GUPTA, REVISED LEE) will best predict perioperative complications among elderly patients undergoing elective non-cardiac surgery

METHODOLOGY: A Retrospective-cohort design was utilized in this study. All patients 65 years old and above who underwent elective non-cardiac surgery from October 2014 to September 2015 were included in this study. Patients who did not have any cardiovascular events in the form of non-fatal myocardial infarction, heart failure, arrhythmia and cardiac arrest were excluded in the study. Risk re-stratification with the three cardiac indexes was performed. Correlation of results using the Independent Samples t Test and the Logistic Regression Analysis was utilized in the study.

RESULTS: Using Independent Samples t Test and Logistic Regression Analysis, It was found out that the Goldman's cardiac risk index showed a significant difference on Heart Failure patients only ($p=0.021$) while the Gupta's cardiac risk index did not show any significant difference on any endpoints being studied. As for the Revised Lee's index, independent sample t-test showed significant difference ($p<0.05$) on all cited complication while the results of logistic regression analysis showed only significant difference for Myocardial Infarction ($p=0.003$), Arrhythmia ($p=0.00$), and Heart Failure ($p=0.005$) but not with Cardiac Arrest ($p=0.055$).

CONCLUSION: In predicting perioperative complications among elderly patients undergoing non-cardiac surgery the Revised Lee's Cardiac Index was found to be the best cardiac risk index to be used among the three being studied. Furthermore, these cardiac risk indices predict cardiovascular complications more in the male population rather than the female population. Basing on age differences, these cardiac risk indexes specifically the Revised Cardiac Risk Index is a better predictor of cardiovascular events in patients with less than 80 years of age. Lastly, due to the very high-risk nature of thoracic and vascular surgery, using cardiac risk indexes in these populations are not predictive of cardiovascular complications.