00266 Predicting Surgical Risk in Colorectal Cancer Surgery: A Validation and Comparison of Different Surgical Risk Scoring Models in a Singapore District Hospital

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Aims: Accurate surgical risk prediction helps patients make informed decisions, allows clinicians to optimize medical management, and aids administrators in allocating healthcare resources efficiently. This study aims to compare the accuracy of these models when applied to our local cohort of colorectal cancer resection patients.

Methodology: A retrospective review of all patients who underwent colorectal cancer surgery at Sengkang Health, Singapore, between 2016 and 2017 was performed. Surgical risks scores from three overseas models (NSQIP, CR-POSSUM, SORT) and one locally developed model (CARES) were computed, and compared with patients' actual clinical outcomes and associated hospital bill costs.

Result: 52 patients of mean age 69.5 years underwent colorectal cancer surgery. 19% of patients underwent emergency surgery, while 44.2% had TMN stage of III or greater. The rates of post-operative ileus and anastomotic leak were 9.6% and 1.9%, respectively. Actual 30-day mortality was 0%. Mean predicted mortality rates were 1.56%±3.35%(CARES), 2.00%±3.96%(NSQIP), 4.71%±6.0%(SORT) and 7.66%±8.39%(CR-POSSUM). All risk models overestimated mortality. Friedman test showed significant difference between the risk scores of the four models, $X2$ (3) = 15.115, p = 0.002. Post hoc Bonferroni correction revealed significant differences between POSSUM (median = 3.5) and CARES (median = 0.2) (p = 0.011) and POSSUM and NSQIP (median = 0.5) (p = 0.009). Linear regression models found NSQIP (p=0.002), POSSUM (p=0.007) and SORT (p=0.001) scores to be associated with length of hospital stay. POSSUM scores were also associated with total hospital bill size (p = 0.031)

Conclusion: All four surgical risk scoring models over predicted patient mortality. This effect may be less pronounced with larger sample sizes. NSQIP, POSSUM and SORT scores correlated with overall length of hospital stay. Risk models should be contextualized and developed based on local population characteristics.