

## Title:

Evaluation of 30-Day Mortality Risk After Hip Fracture Surgery Using the Revised Cardiac Risk Index

## Introduction:

Hip fractures are common among the elderly and carry a high rate of mortality, even when treated operatively. Several mortality risk prediction tools are used to predict early mortality after surgery, and many of these tools are not specific to hip fracture patients. One of the most commonly used tools is the Revised Cardiac Risk Index (RCRI). This study aims to retrospectively apply the RCRI to a cohort of patients at the University of Virginia that were treated surgically for a hip fracture. The goal of this study is to assess whether the RCRI can accurately predict 30-day mortality in patients undergoing surgery for hip fracture.

## Methods:

311 patients who underwent surgical fixation of a hip fracture between 2005 and 2017 at the University of Virginia were retrospectively evaluated based on the risk factors included in the RCRI. Patients younger than 65, periprosthetic fractures, revision procedures, and fractures treated non-operatively were excluded. The primary outcome was 30-day mortality.

## Results:

In our cohort of 311 patients treated surgically for hip fractures, 19 died within 30 days after surgery (6.1%). No significant correlation was found between total RCRI score and 30-day mortality risk ( $r = 0.08$ ,  $p = 0.17$ ). There was also no significant difference in RCRI score between patients who died within 30-days and those who did not ( $p = 0.14$ ). Although the expected mortality rates based on RCRI risk class were similar to the observed mortality rates in each risk class group, the differences between these groups were not statistically significant ( $p = 0.30$ ).

## Conclusion:

The Revised Cardiac Risk Index is widely used for predicting early mortality after surgery, but has not been extensively studied in hip fracture patients. In a cohort of patients undergoing hip fracture surgery at the University of Virginia, RCRI was found to not be significantly associated with 30-day mortality risk. Use of a risk prediction tool that is specific to hip fracture patients should be considered when estimating early mortality risk after hip fracture surgery.