

The Modified-KLICC Score: A Novel Tool to Predict Outcomes following Debridement, Antibiotics, and Implant Retention (DAIR) after Acute Periprosthetic Hip Infection

Pablo Ariel Slullitel¹, Juan Ignacio Perez², Gerardo Zanotti, Fernando Martin Comba³, Martin Buttaró

¹Orthopaedics, Hospital Italiano Buenos Aires, ²Orthopaedics, Hospital Italiano De Buenos Aires, ³Hospital Italiano de Buenos Aires

INTRODUCTION: Debridement, antibiotics, and implant retention (DAIR) is a widely used treatment modality for early acute prosthetic joint infection (PJI) of the hip. Two preoperative risk models had been designed to predict DAIR failure: KLICC and CRIME-80 scores. However, external validation of both scores is scarce. The aim of this study was to validate the KLICC and CRIME-80 scores in an external cohort and to create a new model with additional risk factors.

METHODS:

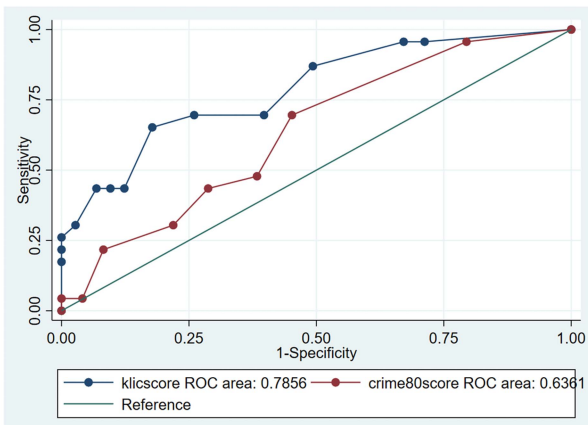
We retrospectively evaluated 96 patients with early acute hip-PJI treated with DAIR. Early acute PJI was defined as <30 days of symptoms and DAIR performed within 90 days after index surgery. At a 2-year cut-off, failure was defined as the need for second DAIR, implant removal, or 90-day infection-related death. Association between demographic variables and failures was tested. The model discriminatory performance was measured using the time-dependent receiver operating characteristic (ROC) curve and Harrell concordance index (C-index). The calibration-in-the-large (CITL) was calculated as the logistic regression model intercept. A modified KLICC score was created by adding the variable time-from-onset-of-symptoms-to-DAIR.

RESULTS:

The 24-month cumulative incidence of failure was 23.96% (95%CI 15.9-32.8). KLICC's discrimination had an AUROC of 0.79 (95%CI 0.67-0.90); with a CITL of -0.57 (95%CI -1.16 to -0.01) and a SLOPE of 0.68 (95%CI 0.35-1.02). CRIME-80's discrimination had an AUROC of 0.63 (95%CI 0.51-0.76); with a CITL of -1.66 (95%CI -2.13 to -1.19) and a slope of 0.35 (95%CI -0.14 to 0.85). The difference between both AUROCs was statistically significant ($p=0.0138$), with the KLICC score being better. As compared to the original KLICC score, the modified-KLICC improved the AUROC curve to 0.85 and the beta slope and alpha intercept to 1.24 and -0.07, respectively ($p=0.02$).

DISCUSSION AND CONCLUSION: KLICC was superior to CRIME-80 in predicting DAIR failure. The modified KLICC score, created in the present study, improved the prediction of DAIR failure. This model can be useful to define the possible indication of a revision in 1 or 2 stages in cases where the predictive DAIR failure is very high.

KLICC vs CRIME-80 scores



KLICC vs Modified KLICC scores

