

AB101. SOH21AS092.

Predicting postoperative wound complications following elective total hip and knee arthroplasty: a prospective surveillance study

Firas Raheman¹, Prithish Narayan¹,
Lotte Maercklin², Ganapathy Perianayagam¹,
Jason Auld¹

¹Department of Orthopaedics, Northampton General Hospital, Northampton, UK; ²Department of Orthopaedics, University Hospitals of Leicester NHS Trust, Leicester, UK

Background: Postoperative wound complications following elective total hip arthroplasty (THA) and total knee arthroplasty (TKA) are challenging as these may increase risk of developing a periprosthetic infection. Our objective was to evaluate the efficacy of Charlson comorbidity index (CCI) and the Modified Frailty Index (MFI-11) as independent predictors of wound complications following primary THA and TKA.

Methods: Retrospective case-control study of prospective-surveillance was carried out on all patients who underwent elective TKA or THA from January 2019 to October 2019. Demographic-data, ASA grade, CCI and MFI-11 scored patient co-morbidity. Patients were surveyed for wound-leakage; defined as continuous drainage >72-hour post-operatively or ≥ 1 dressing change every 24-hour. Univariate and multivariate-analysis. Multivariate-logistic-regression models assessed association of co-morbidity scores with post-operative wound complications.

Results: A total of 550 patients were identified, including 258 THA and 292 TKA patients. The mean age was 70 years (range, 40–94 years), length of stay was 4.24 days (SD 3.28), CCI was 2.9 (SD 1.57), MFI-11 was 4.14/14.47% (SD 8.8), 53% had a BMI ≥ 25 kg/m². Prospective-surveillance over 10 months identified a 7% (n=36) incidence of wound-complications (17 TKA vs. 19 THA). CCI ≥ 3 [risk ratio

1.9 (95% CI: 0.9–2.5)] independently increased risk as did MFI-11 of $\geq 18.2\%$ [odds ratio 2.2 (95% CI: 0.8–3.9)]. PJI and revision surgery was associated with an adjusted hazard-ratio of 1.7 (95% CI: 1.1–2.1) when a combined CCI ≥ 3 and MFI-11 $\geq 19.2\%$ was present.

Conclusions: Severity of wound complications varies from uncomplicated cases requiring local wound-care and antibiotics to complex revision-surgery associated with prolonged hospitalisation, increased cost of-care and high morbidity and mortality. This study highlights the potential benefit of using the CCI and MFI-11 as risk-stratification tools to identify and manage patients at risk of wound complications.

Keywords: Arthroplasty; hip; knee; infection; prediction

Acknowledgments

Funding: None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/map-21-ab101

Cite this abstract as: Raheman F, Narayan P, Maercklin L, Perianayagam G, Auld J. Predicting postoperative wound complications following elective total hip and knee arthroplasty: a prospective surveillance study. *Mesentery Peritoneum* 2021;5:AB101.