#1613 - Systematic Review / Posters

Predictive Models For Clinical Outcomes In Total Knee Arthroplasty: A Systematic Analysis.

General Topics / Basic Sciences

Cécile Batailler[1], Timothy Lording[2], Daniele DE MASSARI[3], Sietske WITVOET-BRAAM[4], Stefano BINI[5], Elvire Servien[1], Sébastien Lustig[1]

1. Croix Rousse Hospital, Lyon, France
2. Melbourne Orthopaedic Group, Melbourne, Australia
3. Stryker, Eindhoven, Netherlands Antilles
4. Stryker, Freiburg, Germany
5. University of California, San Francisco, United States

Keywords: Predictive Model, Predictive Factor, Total Knee Arthroplasty, Functional Outcomes, Satisfaction.

Background
Predictive modeling promises to improve our understanding of what variables influence patient satisfaction following total knee arthroplasty (TKA).

Objectives
The purpose of this paper was to systematically review the relevant literature using predictive models of clinical outcomes following TKA. The aim was to identify the predictor strategies used for systematic data collection with the highest likelihood of success in predicting clinical outcomes.

Study Design & Methods
A PRISMA systematic review was conducted using three databases (MEDLINE, EMBASE, Pubmed) to identify all clinical studies that had used predictive models or that assessed predictive features for outcomes after TKA between 1996 and 2020. The ROBINS-I tool was used to evaluate the quality of the studies and the risk of bias.

Results
A total of 64 studies were identified of which 43 met our inclusion criteria. Pre-operative predictive factors strongly associated with post-operative clinical outcomes were knee pain, knee specific Patient-Reported Outcome Measure (PROM) scores, and mental health scores. Demographic characteristics, pre-existing comorbidities, knee alignment had an inconsistent association with outcome. The outcome measures that correlated best with the predictive models were improvement of PROM scores, pain scores and patient satisfaction.

Conclusions
Several algorithms, based on PROMs improvement, patient satisfaction, or pain after TKA, have been developed to improve decision making regarding both indications for surgery and surgical strategy. Functional features such as preoperative pain and PROMs scores were highly predictive for clinical outcomes following TKA. Some variables such as demographics data or knee alignment were less

strongly correlated with TKA outcomes.