Outcome prediction for treatment of knee osteoarthritis with a total knee arthroplasty. Development and validation of a prediction model for pain and functional outcome using the Dutch arthroplasty register (LROI) data

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Abstract THU0461 – Table 1. The table shows one definition for each combination of domains.

<table>
<thead>
<tr>
<th>Domains</th>
<th>Outcome Measures Used</th>
<th>anchors/metric(s)</th>
<th>value</th>
<th>time points used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s concentred (three domain used)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>WOMAC, pain</td>
<td>absolute change</td>
<td>NRDC ≤ 6</td>
<td>6M</td>
</tr>
<tr>
<td>Function (improvement)</td>
<td>Knee flexion</td>
<td>absolute change</td>
<td>≤ 0°</td>
<td>6M</td>
</tr>
<tr>
<td>Physical function</td>
<td>WOMAC, function</td>
<td>relative change</td>
<td>≤ 50% improvement from baseline to 6M</td>
<td>6M</td>
</tr>
<tr>
<td>HRQoL</td>
<td>SF-12, mental &amp; physical component</td>
<td>absolute change</td>
<td>Determination of 1/2 compared to preoperative</td>
<td>≥ 12W + 6M</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Single item question</td>
<td>absolute change</td>
<td>≤ 10/100</td>
<td>≤ 12M</td>
</tr>
</tbody>
</table>

Disclosures of Interests: None declared


THU0462

OUTCOME PREDICTION FOR TREATMENT OF KNEE OSTEONECROSIS WITH A TOTAL KNEE ARTHROPLASTY: DEVELOPMENT AND VALIDATION OF A PREDICTION MODEL FOR PAIN AND FUNCTIONAL OUTCOME USING THE DUTCH ARTHROPLASTY REGISTER (LROI) DATA

J.J. Tolk1, J.H. Waarsing2, R.P.A. Janssen1, L.N. van Steenbergen3, S.M. A. Biema-Zaestra4, Max Reijman4. 1Erasmus MC, University Medical Center Rotterdam, Department of general practice, Rotterdam, Netherlands; 2Erasmus MC, University Medical Center Rotterdam, Department of Orthopaedic Surgery, ’s Hertogenbosch, Netherlands; 3Erasmus MC, University Medical Center Rotterdam, Department of Orthopaedic Surgery, Rotterdam, Netherlands; 4Erasmus MC, University Medical Center Rotterdam, Department of Orthopaedic Surgery, Rotterdam, Netherlands

Background: One of the main determinants of treatment satisfaction after total knee arthroplasty (TKA) is the fulfillment of preoperative expectations. For optimal expectation management it is useful to be able accurately predict the treatment result. Multiple patient factors that are obtained for registration in the Dutch Arthroplasty Registry (LROI) are associated with the treatment result. Therefore, these factors can potentially be utilised to estimate the most likely outcome on pain and functional outcome for an individual patient.

Objectives: The aim of the present study was to create and validate models that predict residual symptoms on 10 specific outcome parameters at 12-month follow-up for patients undergoing primary TKA for knee osteoarthritis.

Methods: Data was extracted from the LROI on TKA patients who had pre- and postoperative PROMs registered in the LROI registry. Multiple logistic regression analyses were performed to construct predictive algorithms for satisfaction, treatment success, and residual symptoms concerning pain in rest and during activity, sit-to-stand movement, stair negotiation, walking, performance of activities of daily living, kneeling and squatting. Models were developed for men and women separately. We assessed predictive performance by examining measures of calibration and discrimination.

Results: Data of 7071 patients could be included for data analysis. Residual complaints on kneeling (72%/59%) and squatting (71%/56%) were reported most frequently, and least residual complaints were scored for walking (16%/12%) and pain in rest (18%/14%). The predictive algorithms for residual symptoms concerning sit-to-stand movement, stair negotiation, walking, activities of daily living and treatment success showed acceptable discriminative values (AUC 0.68 – 0.74). The prediction models for residual complaints regarding kneeling, squatting, pain and satisfaction showed the least favourable results (AUC 0.58 – 0.64). The calibration curves showed adequate calibration for most of the models.

Conclusion: Unrealistic preoperative expectations have a strong influence on the outcome after total knee arthroplasty (TKA). More insight into determinants of the level of expectations is useful in identifying patients at risk for unrealistic expectations. This information can be used in optimizing pre-operative expectation management.

Objectives: The aim of the current study was to analyze to what extent pre-operative outcome expectations of TKA patients are determined by psychological factors, demographic factors, pain, physical function and general health status.

Methods: A cross-sectional analysis of 204 patients with symptomatic and radiographic knee OA, scheduled for primary TKA was conducted. Outcome expectations were measured using the Hospital for Special Surgery Knee Replacement expectations survey. Independent variables included were age, sex, body mass index and patient reported outcome measures for pain, physical function, quality of life, anxiety, depression, catastrophizing, optimism and pessimism. Multiple linear regression analyses were used to evaluate associations between these variables and pre-operative outcome expectations.

Results: The mean overall survey score on the HSS-KRES was 70.9 (SD 17.9). Distribution of expectation scores is shown in Figure 1.