

Patient Factors Influencing the Treatment Effects for Total Hip Arthroplasty (THA) and Knee Arthroplasty (TKA) in the SIRIS Registry – Analysis of the SIRIS Data of Kanton Zurich

Brand Chr¹, Huber J², Bolliger L³, Christen B⁴, Zdravkovic V⁵, Beck M⁶

¹ Brand Christian, PhD, Institut für Sozial- und Präventivmedizin, University, Bern

² Huber Joerg, MD, Orthopaedics, Stadtspital Zurich, Zurich

³ Bolliger Lilianna, MSc ETH, Institut für Sozial- und Präventivmedizin, University, Bern

⁴ Christen Bernhard, MD, MHA, Articon, Bern

⁵ Zdravkovic Vilijam, MSc, Orthopaedic Clinic, Kantonsspital, St. Gallen

⁶ Beck Martin, Prof, Orthopaedic Clinic Lucerne (OKL), Lucerne

E-Mail first author: christian.brand@ispm.unibe.ch

Introduction:

The treatment effect (TE) is a method to measure the individual amelioration for each patient ($TE = \text{amelioration}/\text{baseline score}$) (Fig.1). A TE 1 corresponds to a complete amelioration, a positive TE to a partial amelioration, a TE of 0 to no amelioration and a negative TE to a worsening. In large data sets (registries), confounders for outcome can be analyzed reliably. In this study patient related confounders were analyzed on their impact on outcome.

Materials and Methods:

Included were patients in the SIRIS registry of Kanton Zurich with unilateral THA and TKA for OA. Excluded were patients with fractures, tumor, bilateral arthroplasties, and incomplete 1-year follow up. The patient related variables were gender, age, body mass index, comorbidities as ASA Grades, and affected side. The TEs were calculated using the minimal data set of Swiss Orthopaedics (PROMs) 50% pain/50% daily impairments. The patients were stratified for each variable and the mean TEs compared.

Results:

We could include 3,566 THAs from July 2019 to Dec 2021 and 2,809 TKAs. The mean age for THA was 68.8 years old, for TKA 70.0. Patient related variables: Gender: no difference in the mean TEs for THA/TKA. Age: youngest and oldest patients benefitting less for THA and no effect for TKA. BMI: no difference for THA/TKA, Comorbidities: less benefit with higher degree of morbidity for THA and no difference for TKA. Affected side: no difference for THA/TKA.

Discussion:

The analyzed factors gender, body mass and affected side have no influence on outcome. A higher grade of comorbidities had a small negative influence on outcome (ASA 1/2 vs. ASA 3, 4) for THAs only. These findings are important to share with patients for their decision-making against or for surgery. However, the influence of known patient factors on patient benefit is small.