

Are There Discrepancies between Preoperative Planning and the Intraoperative Evaluation Performed by the Surgeon in Total Knee Replacement with Robotic Assistance?

Diego Edwards Silva, Álvaro Cerda, Marilaura Nuñez, Robert Etienne Partarrieu, David Figueroa

INTRODUCTION: There is little evidence regarding the concordance between the preoperative plan using robotic-assisted total knee arthroplasty and that after the prosthetic balance by the surgeon. The objective of this study is to evaluate the level of agreement between the preoperative planning of total knee arthroplasty with semiactive robotic assistance and the planning made by the orthopaedic surgeon during the surgery.

METHODS:

Descriptive study of prostheses installed between October 2018 and June 2019 with preoperative planning performed by one manufacturer's software. Prostheses not installed using the robotic system or with incomplete medical records were excluded. This was compared with intraoperative planning by the orthopaedic surgeon.

Variables analyzed: coronal and sagittal alignment, rotation and size of the components, and insert.

The data was analyzed with same software. A qualitative univariate descriptive analysis was performed, with a 95% confidence interval.

RESULTS: Fifty-one operated knees from 49 patients were included, 69% were women. The level of agreement was:

-Femoral component: axial 86.3% [CI = 73.7 - 94.2], coronal 88.2% [CI = 76.1 - 95.5], sagittal 88.2% [CI = 76.1 - 95.5]

-Tibial component: axial 98% [CI = 89.5 - 99.9], coronal 96.1% [CI = 86.5 - 99.5], sagittal 96.1% [CI = 86.5 - 99.5]

-Component size: femur 94.1% [CI = 83.7 - 98.7], tibia 84.3% [CI = 71.4 - 92.9], insert 27.4% [CI = 15.8 - 41.7]

DISCUSSION AND CONCLUSION: Preoperative planning through the use of semiactive robotic assistance presents a good level of agreement with that planned intraoperatively, with the exception of the insert size. The orthopaedic surgeon is decisive in modifying the preoperative plan.