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The Use Of Imageless Robotic Assistance Does Not Reduce Early Postoperative Pain In Total Knee Replacement Compared To Conventional Arthroplasty

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Faculty Disclosure Information

- The author, Rodrigo Olivieri, reports speaking fees from Johnson & Johnson Medtech.
- The author, Nicolás Gaggero, reports speaking fees from Johnson & Johnson Medtech, and Smith+Nephew.
- The remaining authors declare no conflicts of interest.

Introduction

Robotic assistance (RA) in total knee arthroplasty (TKA) has been linked to improved component alignment accuracy, shorter hospital stays, and fewer surgical errors. However, its effect on postoperative pain remains controversial. Moreover, the variability in prosthesis models and types of assistance limits the generalizability of findings.

Objectives

To assess differences in postoperative resting pain at days 1, 2, 7, and 30 between patients undergoing TKA with imageless RA and those receiving the same prosthesis model with the conventional technique (CT).

Groups

- **Robotic assistance (RA)**
- **Conventional technique (CT)**

Methods

Inclusion

- Patients who underwent TKA surgery under the same anesthetic protocol and hospital analgesic regimen between March and July 2023
- > 30 days of follow-up

Exclusion

- Incomplete records
- Different anesthetic or analgesic treatmement due to any cause

Demographic data and comorbidities were collected from medical records. The **same anesthetic protocol and analgesic regimen** were applied to all patients.

Methods

Blind data collection

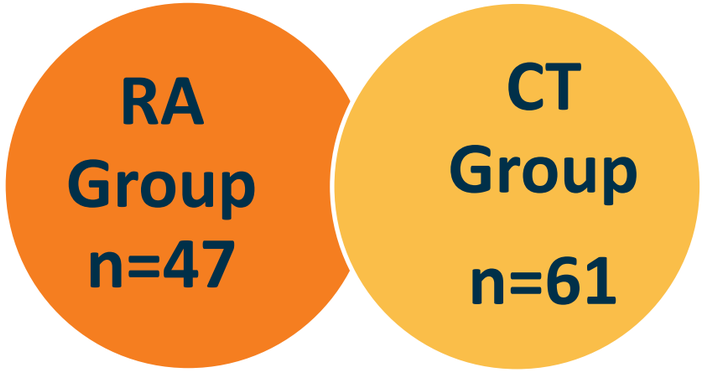
Samen Anesthetic protocol and analgesic regimen for all TKA patientens

Visual analogue scale (VAS) and use of patient-controlled analgesia (PCA) on days 1 and 2

VAS on days 7 and 30

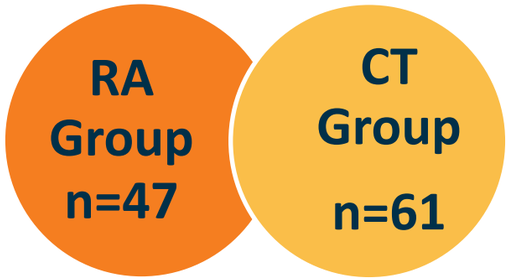
Mann-Whitney tests were used to compare VAS scores between groups at each time point. Fisher's exact test was applied for PCA use, and Chi-square tests were used for other categorical variables. A significance level of $p<0.05$ was considered. Data collection was blinded.

Results



The mean patient age was 67 years (range: 36–85), with 27.8% being male and 87.9% having at least one comorbidity. **Both groups were comparable** in terms of demographics and comorbidities.

Results

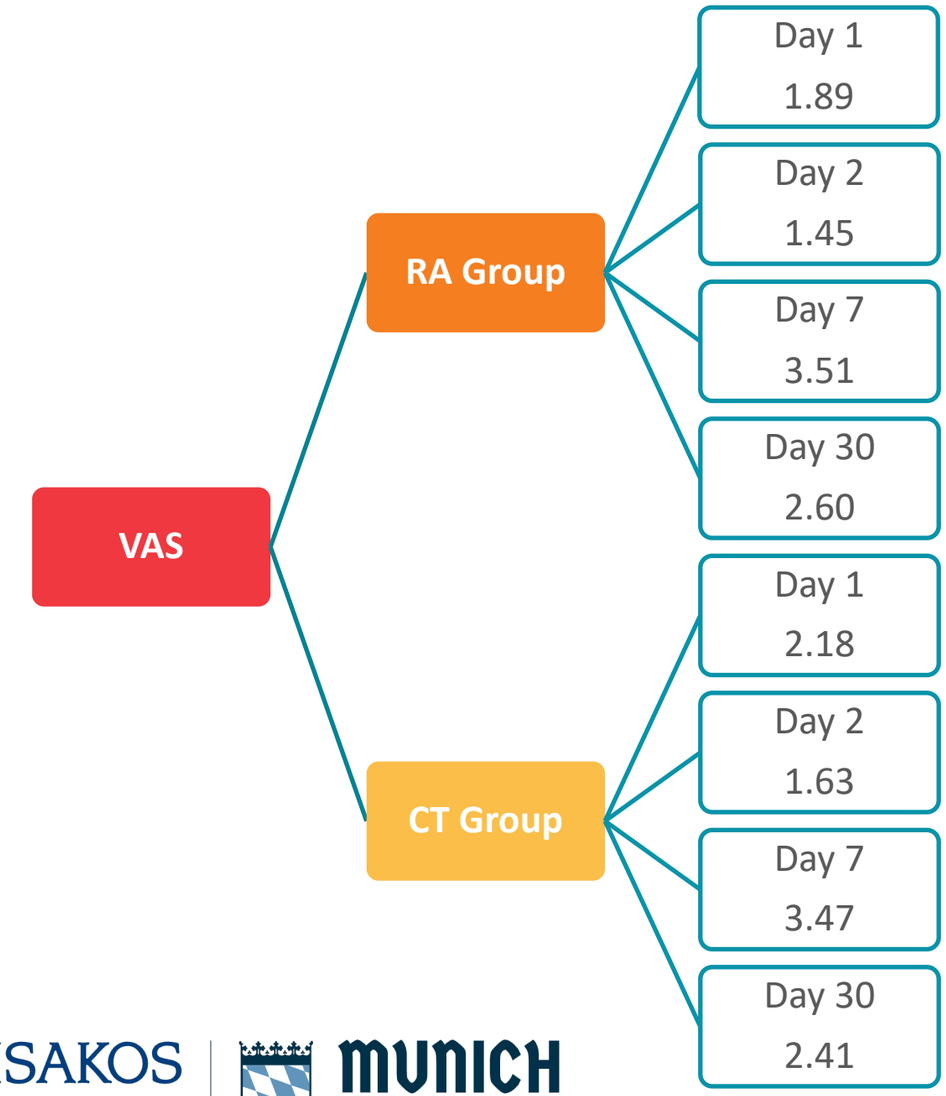


The **average VAS** pain score on **day 1** was **1.89** (95% CI: 1.31–2.47) in the RA group and **2.18** (95% CI: 1.60–2.77) in the CT group. On **day 2**, the scores were **1.45** (95% CI: 0.82–2.08) and **1.63** (95% CI: 1.02–2.25), respectively.

On day 7, the mean VAS pain score was 3.51 (95% CI: 3.13–3.89) in the RA group and 3.47 (95% CI: 3.01–3.93) in the CT group. By day 30, the scores decreased to 2.60 (95% CI: 2.15–3.06) and 2.41 (95% CI: 2.07–2.76), respectively.

No significant differences in postoperative pain were found between the groups on day 1 ($p = 0.425$), day 2 ($p = 0.690$), or in PCA use ($p = 0.578$). Similarly, no significant differences were observed on days 7 and 30 ($p = 0.888$ and $p = 0.516$, respectively)

Results



No Statistically significant difference was found

Conclusion

No statistically significant differences were found in **postoperative pain** or analgesic requirements between patients undergoing **TKA with RA and those treated with CT at days 1, 2, 7, and 30 post-surgery.** Further prospective randomized studies are required to confirm these findings.

References

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