

The initial learning curve for the ROSA® Knee System can be achieved in 6 to 11 cases for operative time and has similar 90-day complication rates with improved implant alignment compared to manual instrumentation in total knee arthroplasty

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In a recent publication Vanlommel et al.¹ sought to evaluate the initial learning curve and accuracy of the ROSA® Knee System using an image-free robotic application compared to conventional instrumentation for total knee arthroplasty (TKA):

1. A change point of 6 to 11 cases for each of three surgeons for operative times suggests a rapid learning curve.
2. The average difference between planned and executed hip-knee-ankle (HKA) angle was $1.2^\circ \pm 1.1^\circ$.
3. The proportion of outliers for the HKA angle was 5.2% for ROSA Knee and 24.1% for conventional.

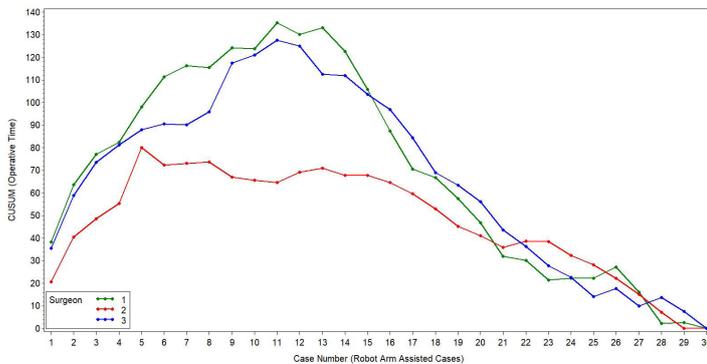
Methods

A retrospective cohort study on a series of patients (n=180) that underwent raTKA (n=90) using the ROSA Total Knee System or mTKA (n = 90) by one of three high volume (>200 cases per year) orthopedic surgeons between December 2019 and September 2020, with minimum three-month follow-up.

Surgical times (minutes), post-operative complications, and accuracy to plan for raTKA cases were reviewed.

Results

A change point of 6 to 11 cases for each of three surgeons for operative times suggests a rapid learning curve. Total surgical times continued to decrease with time.



References

1. Vanlommel L, Neven E, Anderson MB, Bruckers L, Truijien J. The initial learning curve for the ROSA(R) Knee System can be achieved in 6-11 cases for operative time and has similar 90-day complication rates with improved implant alignment compared to manual instrumentation in total knee arthroplasty. J Exp Orthop 2021; 8(1): 119.

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The proportion of outliers for the final hip-knee-ankle angle compared to planned was 5.2% (3/58) for the mastered raTKA compared to 24.1% (19/79) for mTKA (p=0.003).

The absolute mean difference between the validated and planned resections for all angles evaluated was <1 degree for the mastered raTKA cases.

Conclusion

This cutting guide positioning robotic system can be integrated relatively quickly with a rapid initial learning curve (6-11 cases) for operative times, similar 90-day complication rates, and improved component positioning compared to mTKA.

Proficiency of the system requires additional analysis, but it can be expected to improve over time.

Significance

This study demonstrates the ability of the ROSA Knee System to be adopted rather quickly with improvements on accuracy compared to mTKA.