Introduction

• The complexities of RAPN can lead to a steep learning curve.
• We assessed the surgical learning curve and plateau point for achieving the trifecta and minimizing OT in RAPN.
• How do we define the Trifecta?
  1. Warm ischemia time <25 minutes
  2. Negative surgical margins
  3. No grade 3 or higher postoperative complications

Methods

• We evaluated 418 consecutive RAPN from a fellowship trained robotic surgeon between February 2008 and April 2019. The cases were separated into increments of 50.
• Cases were excluded from analysis if the patient had a prior RAPN (7 cases), if the patient was treated for calyceal diverticulum (4 cases), or if it was classified as a combo case (1 case).
• For the primary analysis we explored the correlation between surgical case number and patient outcomes using the Kendall correlation test. Restricted cubic spline regression methods were used as supplemental analyses to evaluate the learning curves.
• Age, sex, body mass index, tumor size, Mayo Adhesive Probability score, and R.E.N.A.L. score were all adjusted for as potential confounding variables in the spline regression methods.
• All statistical tests were two-sided. P values < 0.05 were considered statistically significant.

Results

• Among the 406 eligible patients included in the study, 252 (62.1%) were male, median age was 63 years (range, 22 to 84), and median body mass index was 29 kg/m² (IQR 26, 33). See Table 1
• Operative Time Analysis
  • Average OT was 200 minutes
  • Experience (higher case number) was associated with shorter OT (P<0.001).
  • See Table 2 and Figure 1A
• Trifecta Analysis
  • 272 (65%) patients achieved the trifecta
  • Surgeon experience not statistically correlated to trends in achieving the trifecta
  • Peak performance of achieving the trifecta with surgeon experience of slightly under 100 cases (restricted cubic spline regression)
  • See Table 2 and Figure 2B

Conclusions

Maximizing OT performance and achievement of trifecta in RAPN appears to occur at a learning curve of about 100 cases.

References