Robotic-assisted versus laparoscopic surgery: Twelve-month outcomes from the first multicenter randomized patient blinded controlled trial in radical prostatectomy (LAP-01)

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Introduction & Objectives: The LAP-01 trial was designed to address the lack of high-quality literature comparing robotic-assisted (RARP) and conventional laparoscopic (LRP) radical prostatectomy.

Materials & Methods: In this multicenter randomized controlled trial, patients were randomly assigned to RARP or LRP in a 3:1 ratio. The primary outcome was time to continence recovery at 3 months based on the patient’s pad diary. Secondary endpoints included continence, potency and quality of life as well as oncological outcomes up to 3 years of follow-up (FU). Time to continence was analysed by log-rank test and depicted by the Kaplan-Meier method. Continuous measurements were analysed by means of linear mixed models. We report the 12 month-FU data.

Results: From November 2014 to April 2019, 782 patients were randomized. The primary endpoint was evaluable in 718 patients (547 RARP, 171 LRP). At 12 months, follow-up data were available for 701 patients. At 3 months, the difference in continence rates (0 pads or safety pad definition) significantly favoured RARP (P=0.027). There was no statistically significant differences in continence rates between the two groups at 6 and 12 months (P=0.068 and P=0.38 respectively). Regression analysis revealed that continence was significantly correlated with baseline continence, study arm and nerve-sparing procedure at 12 months. Patients who underwent wide excision (non-nerve sparing) had no difference in continence between RARP and LRP throughout the whole follow up period. Patients that were potent at baseline and received a nerve sparing (NS) surgery were reported significantly higher potency after RARP as defined by erection sufficient for intercourse at 3 (P=0.005), 6 (P=0.018), and 12 months (P=0.013). There were no statistically significant differences in oncologic outcomes at 12-month FU.

Conclusions: In conclusion, both LRP and RARP offers a high standard of therapy for prostate cancer patients. However, robotic assistance offers better functional outcomes in specific areas like potency and early continence in patients who are eligible for nerve sparing RP.