47th ANNUAL INTERNATIONAL CONGRESS EHS 2025 JUNE 4-6 PARIS - FRANCE

Inguinal hernia

COST-EFFECTIVENESS ANALYSIS OF LAPAROSCOPIC VERSUS ROBOTIC (HUGO™ RAS) BILATERAL INGUINAL HERNIA REPAIR

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INTRODUCTION

Bilateral inguinal hernia repair is one of the most frequently performed surgical procedures worldwide. The adoption of robotic-assisted surgery has introduced potential advantages, yet its cost-effectiveness compared to laparoscopy remains controversial. To evaluate and compare clinical outcomes and cost-effectiveness between laparoscopic (L-TAPP) and robotic (Hugo™ RAS R-TAPP) bilateral inguinal hernia repairs.

MATERIALS AND METHODS

This prospective non-randomized study included patients undergoing bilateral inguinal hernia repair between February 2023 and November 2024. Outcomes evaluated included operative time, length of hospital stay, postoperative complications, pain scores, recurrence rates, and quality-adjusted life years (QALYs). Costs were analysed from a hospital perspective

RESULTS

A total of 64 procedures (32 laparoscopic, 32 robotic) were included. Robotic procedures demonstrated a longer operative time but were associated with lower early postoperative pain scores and a reduced incidence of chronic groin pain. The mean total cost was higher for robotic surgery (€4,365.80 vs €1,690.54). Cost-utility analysis yielded an incremental cost-effectiveness ratio (ICER) of €29,488.16 per QALY gained for the robotic approach.

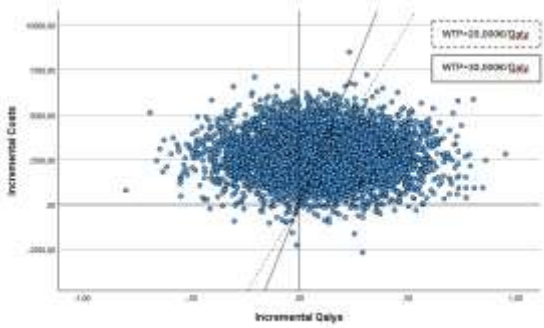
	Sex	Age (years)	BMI	ASA	Complicated hernias (inguino-scrotal or recurrent hernias)	Hospitalization (days)	Operative time (min)
L-TAPP (n=32)	M 29 (90.6%) F 3 (9.4%)	64.7	24.9	1.9	7 (10.9%)	1.3	101.3
R-TAPP (n=32)	M 31 (96.9%) F 1 (3.1%)	70	25.8	2.1	5 (7.8%)	1.6	144.6
p	0,306	0,001	0,288	0,285		0,069	<0,001

Table 1- Patients characteristics

	VAS (1 day post-op)	VAS (7 days post-op)	Post-operative minor complications	Recurrences	Chronic pain	Median duration of chronic pain (days)	Conversion
Lap-TAPP (n=32)	0.9	0.6	10 (31.3%) Clay-Dindo I-II	0	3 (9.4%)	97.7	0
R-TAPP (n=32)	0.4	0.3	7 (21.9%) Clay-Dindo I-II	0	0	0	0
p	0,024	0,122	0,284		0,079		

Table 2- Post-operative outcomes

Table 3- Cost-effectiveness comparison



Figue 1- Plot of 5000 bootstrap replicates of the incremental cost per QALY

Figure 2- Cost-effectiveness acceptability curve. WTP indicates willing-to-p

CONCLUSION

Robotic-assisted TAPP repair using the Hugo™ RAS system is a feasible and safe alternative to laparoscopic surgery, offering improved postoperative outcomes at higher costs.