LAPAROSCOPIC VERSUS ROBOTIC INGUINAL HERNIA REPAIR: A DECADE'S EXPERIENCE

Omar Yusef Kudsi, MD, MBA, FACS[1,3], Georges Kaoukabani, MD, MSc[1]; Naseem Bou-Ayash, MD[2]; Fahri Gokcal, MD[1]

[1]Good Samaritan Medical Center; [2]Tufts Medical Center; [3]Tufts School of Medicine

Objective

- To compare outcomes and costs between laparoscopic and robotic inguinal hernia repairs (LIHR, RIHR)

Methods

- Elective LIHR or RIHR from 2012 to 2022 were reviewed.
- Patients' demographics, operative details, postoperative outcomes, and financial burden (hospital, post-discharge, total costs) were compared using univariate statistical tests.
- Multiple linear regression analysis was performed to determine associations between preoperative variables and increased costs.

Results

- 588 LIHR and 644 RIHR were included.
- No difference in patient demographics except for the American Society of Anesthesiology (ASA).
- Comparable bilateral hernias rates (RIHR: 34.2% vs. LIHR: 28.9%, p=0.132).
- Higher rate of complex hernia (inguinal hernias previously repaired with posterior approach, history of open prostatectomy, incarcerated hernias, scrotal hernias) in RIHR (29% vs. LIHR: 12%, p<0.001).
- Longer median operating time by ~20 minutes in RIHR (p<0.001).
- Comparable intraoperative complications rates (p=0.99).

	Hospital Costs		Post-Discharge Costs		Total Costs	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Robotic (vs. Open)	600.2	**0.0001**	-154.09	**0.024**	445.57	0.0126
ASA-2 (vs.ASA-1)	170.40	0.47	108.61	0.2984	274.77	0.31
ASA-3	635.18	**0.014**	213.36	0.060	845.1	0.004
ASA-4	6485.61	**<0.0001**	4668.38	**<0.0001**	11165.94	**<0.0001**
Previous Posterior Repair	1222.103	**0.001**			1319.25	**0.0026**
Previous Prostatectomy	1263.51	**0.01**			1327.57	**0.0183**
Incarcerated Hernia	2135.52	**<0.0001**			2085.80	**<0.0001**
Bilateral Hernias	1045.36	**<0.0001**			1080.80	**<0.0001**

Results

- Higher rates of peritoneal breach during preperitoneal dissection and of conversion in LIHR than in RIHR.
- Comparable hospital length of stay between both groups (p=0.097).
- Higher Clavien-Dindo Grade-IIIB complication rate and mean Comprehensive-Complication-Index in LIHR than RIHR (3.4% vs. 1.4% and 2.6 vs. 1.7, respectively, p=0.024).
- Sixteen (3%) hernia recurrences noted in LIHR, versus 4 (0.7%) in RIHR (p=0.003).
- Higher mean hospital cost by $896 in RIHR ($p$<0.001).
- Lower mean post-discharge cost by $155 ($p$=0.03) in RIHR.
- Higher mean (95%-Confidence Interval) total cost in RIHR [5869 (5607-6130) vs. 5128 (4875-5381), (p<0.001)].
- The robotic approach, higher ASA scores, prior posterior IHR, previous prostatectomy, and bilateral inguinal hernia were independently associated with each cost component (table).

Conclusion

- RIHR provided lower recurrence and complication rates in more complex hernias at a higher total cost.
- Hernia complexity, ASA-class, choice of approach, and bilaterality may contribute to the higher financial burden of IHR.

Good Samaritan Medical Center
A STEWARD FAMILY HOSPITAL

Tufts Medical Center

Contact information *: omar.kudsi@tufts.edu*