

Benefit of Robotic Assistance in Comparing Outcomes of Minimally Invasive Versus Open Radical Prostatectomy

TO THE EDITOR: The recent article by Hu et al¹ comparing utilization, complication, and salvage therapy rates for minimally invasive radical prostatectomy (MIRP) against those of open radical prostatectomy in a random cohort of men from the Centers for Medicare and Medicaid Services nationwide database has engendered significant interest among prostate cancer surgeons, patient support groups, and the popular media.² The authors reported that compared with those choosing open radical prostatectomy, men undergoing MIRP had a significantly lower risk of perioperative complications (29.8% v 36.4%, $P = .002$) and shorter mean length of stay (1.42 days v 4.35 days, $P < .001$). However, the MIRP patients had higher rates of anastomotic stricture (15.2% v 12.0%, odds ratio 1.4) and more than three times the likelihood of requiring postoperative salvage therapy within 6 months of definitive surgery, either in the form of radiotherapy or injectable hormonal therapy (27.8% v 9.1%, $P < .001$). These

unpleasant sequelae in the minimally invasive cohort were reportedly fewer in surgeons with high case volumes.

Understandably, these findings have provoked widespread discussion among oncologic urologists on how and why minimally invasive surgery seems to deliver poorer postoperative outcomes compared with open radical prostatectomy. It is timely at this juncture to highlight some limitations of this study. First, the authors did not provide data on the clinicopathologic profile of their patients, such as preoperative serum prostate-specific antigen levels, Gleason scores, margin positivity, and biochemical failure rates. Second, no data were available on the proportion of these MIRP procedures being performed with and without robotic assistance. Patient selection from the Centers for Medicare and Medicaid Services database for this retrospective study was performed by identifying their inpatient, outpatient, and carrier component files based on the current physician current procedural terminology coding system codes for minimally invasive radical prostatectomy, perineal, and retropubic radical prostatectomy. Given that there is no specific code for robot-assisted laparoscopic radical prostatectomy to date, several surgeons performing this type of surgery for prostate cancer (including our center) choose unlisted codes for billing purposes, specifying the robotic procedure in the details. Hence, it is conceivable that the outcomes

Table 1. Comparison of Our Single-Surgeon Experience of Medicare Patients Undergoing Robot-Assisted MIRP With the Results of Hu et al¹

Variable	Open Radical Prostatectomy (N = 2094, Hu)	MIRP (N = 608, Hu)	Robot-Assisted MIRP (N = 183, Tewari)
Age, %			
< 65	0	0	10.9
65-69	51.8	54.2	48.6
70-75	27.6	34.3	31.1
> 75	20.5	11.5	9.3
Mean PSA, ng/dL	Not available	Not available	6.35
Gleason score, %			
≤ 6	Not available	Not available	30.29
7 (3 + 4)	Not available	Not available	41.14
7 (4 + 3)	Not available	Not available	17.14
8, 9, 10	Not available	Not available	10.86
Perioperative complications, %			
Overall	36.4	29.8	1.64
Cardiac	6.6	4.3	0
Respiratory	11.7	6.7	0
Vascular	6.5	5.3	0
Wound/hemorrhage	3.6	1.6	0.54
Genitourinary	8.0	4.4	0
Miscellaneous medical	16.3	11.0	0
Miscellaneous surgical	8.0	6.6	1.1
Mean length of stay, days	4.35	1.42	1.3
Anastomotic stricture, %	12	15.2	0.54
Salvage therapy, %	9.1	27.8	3.83
Biochemical recurrence/failure, %	Not available	Not available	4.7
Overall positive surgical margin rate, %	Not available	Not available	6.1
Continence at 6 months, %	Not available	Not available	96.1

Abbreviations: MIRP, minimally invasive radical prostatectomy; PSA, prostate-specific antigen.

data of a significant proportion of patients undergoing robotic-assisted MIRP were not included in the final analysis.

Robotic assistance during MIRP gives surgeons improved optical magnification and dexterity, factors believed to shorten their learning curve in transitioning from an open to minimally invasive approach.^{3,4} We found the high complication and salvage treatment rates of both patient cohorts surprising in the article by Hu et al, and would like to share our differing experience from that reported by the authors.

Between January 2005 and May 2008, 1,173 patients underwent robot-assisted MIRP by a single surgeon (A.T.) at our center. Of these, 183 Medicare patients were coded using CPT code 55899 for billing purposes. In addition to the same outcome parameters described by Hu et al, we collected data on serum prostate-specific antigen, Gleason scores, margin positivity, and biochemical failure rates through chart reviews, telephone interviews, and follow-up expanded prostate cancer index questionnaire-validated questionnaires. Our results are summarized in Table 1.

Our experience with robotic-assisted MIRP by an experienced high-volume surgeon differed significantly from the findings of Hu et al. Despite having a similar age profile, the overall perioperative complication rate was 1.64%, anastomotic stricture rate was 0.54%, biochemical failure rate was 4.7%, and salvage therapy rate was less than 4.0% in our cohort of Medicare patients. Our cohort included one patient with suppurative anastomotic leak requiring laparotomy with pelvic washout. Another patient had a small bowel obstruction secondary to port site herniation requiring surgical repair. We documented a margin positivity rate of 6.1% in this patient group, compared with an overall rate of 9.6% in our series of 1,173 patients to date.

Our experience with robot-assisted MIRP differs significantly from that reported by Hu et al, which some have urged not to be construed as a surrogate for the nationwide experience, given that the Hu et al group of minimally invasive prostatectomy patients was not further broken down into robotic laparoscopic or pure laparoscopic operations.⁵ Recent published data on outcomes in 2,766 men undergoing robotic-assisted MIRP also seems encouraging, with an actuarial 5-year biochemical-free survival rate of 84%, overall continence rate of 93%, and mean hospital stay of 1.14 days.⁶ We concur with

other authors that surgeon experience, high case volume, and prudent patient selection undoubtedly contribute to differences in functional and oncologic outcomes after the same surgery.^{7,8}

Until scientific breakthroughs allow surgeons to better distinguish patients with likely aggressive from indolent prostate cancer, radical prostatectomy remains the most common treatment for early disease. With more than half of all surgeries for prostate cancer in the United States in 2007 being performed with robotic assistance, we hope our experience will give readers and all patients renewed hope for successfully overcoming this ubiquitous public health concern.

Ashutosh K. Tewari, Jay K. Jhaveri, Krishna Surasi, Nishant Patel, and Gerald Y. Tan

Department of Urology, Weill Medical College of Cornell University, New York, NY

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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