

data could raise some concerns about the indication to a totally ICUD in fragile patients.

CONCLUSION

In our single-institution, head-to-head comparison of 2 expert surgeons, ICUD and ECUD for ileal conduit has comparable perioperative outcomes and complication rates after RARC. Further studies are needed to validate our findings in randomized studies with larger sample size.

SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at <https://doi.org/10.1016/j.urology.2018.11.059>.

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EDITORIAL COMMENT



The authors report on a single-institution comparison between 2 surgeons, one performing exclusively intracorporeal ileal conduit urinary diversion (ICUD), while the other performed exclusively extracorporeal ileal conduit urinary diversions (ECUD). In this series, which compared perioperative complication and oncologic outcomes, no significant differences between the techniques were established. The utilization of robotic-assisted radical cystectomy (RARC) continues to rise, nearly 25-fold over the last decade,¹ which makes studies like this imperative. Growing data suggest that, when compared to open radical cystectomy, RARC may offer decreased blood loss with comparable oncologic outcomes without difference in overall complication rate.² The next logical step is further refinement of operative technique to improve postoperative outcomes. Currently, there is no definitive randomized study comparing ICUD and ECUD.

In our experience, ICUD offers anecdotal benefit in those patients with abdominal obesity, short ureteral, and/or short mesenteric length. In addition, in patients with favorable anatomy ICUD seems to confer no benefit when compared to ECUD in the same cohort, while potentially increasing operative time.

RARC is a potentially morbid and technically demanding procedure with a high learning curve at baseline. The addition of laparoscopic anastomoses increases the complexity of the procedure, especially during the learning phase. Ultimately, surgeon experience and clinical judgment should drive decisions related to the reconstructive portion of RARC. Future studies are needed to help further delineate the approach that reduces short- and long-term patient morbidity and decrease the economic burden on our healthcare systems.

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AUTHOR REPLY



We sincerely thank the colleagues for the nice editorial comment. We are glad they appreciated the present manuscript. Given the increasing number of robot-assisted radical cystectomies performed worldwide, comparing the outcomes of extracorporeal urinary diversion (ECUD) vs intracorporeal urinary diversion (ICUD) represents a key research priority.

The adoption of ICUD has steeply increased in the last years from 9% of all urinary diversions in 2005 to 97% in 2015.¹ ICUD has been questioned to be able to offer some benefits in terms of decreased fluid dispersion due to evaporation, smaller incision, reduced blood losses and faster recovery of bowel function when compared with the ECUD,¹ but a prospective, possibly single-surgeon, comparison between ECUD and ICUD was claimed by recently published major studies about the topic.^{2,3}

The rationale of the present study⁴ was to compare in a prospective single-institutional 2-surgeons setting the perioperative outcomes and complications of robot-assisted radical cystectomy (RARC) with ileal conduit performed with intracorporeal vs extracorporeal approach.

Actually, the findings from our study confirmed that, by the moment, ICUD offers anecdotal benefits.

RARC is a technically demanding procedure with a long learning curve. We agree that this is particularly true when an intracorporeal approach to the urinary diversion is pursued.

Indeed, much of the criticism about ICUD has been attributable to the steep learning curve and the long operative time, so that patients with higher anesthesiological risk are usually less likely to be candidates for ICUD, given the potentially longer exposure to Trendelenburg position and pneumoperitoneum, especially at the beginning of the learning curve (notably, even if

2 expert surgeons contributed to the commented study, patients who underwent ICUD were significantly younger 69 vs 73 years old, $P = .009$). Even if this was not significant within the cohort analyzed in the study, a trend toward a reduction of the operative time was observed in the ICUD cohort, suggesting that there is room for improvement with more consistent experience.

The key point is the centralization of RARC to high volume centers, so that the surgical experience can grow faster with improvements in the operative time and the outcomes. In the beginner surgeons, a modular approach with simulation and mentoring, especially during the early learning curve, has been reported to allow for reduced operative time and complications since the beginning.^{5,6} Moreover, one should note that, particularly for ICUD, it is mandatory that the bed-side assistant is familiar with the technique and the surgical instruments for bowel stapling and anastomosis.

Whatever the perplexity about the intracorporeal approach to the urinary diversion after RARC, we believe that the advent of novel robotic platforms on the market will further push the trend toward a wider adoption of ICUD in the next years.⁷ The ICUD is a fate we feel will broadly come in the future of RARC.

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