eliminates the need to perform steps such as BNI at 12 or joining the upper and lower incisions.[11]

Interestingly, the level of difficulty of only a few steps (joining the BNIs distally and dividing the mucosal bridge distally) was influenced by the level of expertise of the participants. We believe that the relative small number of residents and the heterogeneity of the specialists regarding their experience with endoscopic surgery might explain this fact.

The current study should be interpreted in the context of limitations. This model does not simulate the morcellation phase; furthermore, a single simulator is not generalizable to all situations. However, the advantages of this prostatic model are that this model is anatomical, and actual HoLEP instruments and a real holmium laser are used in the simulation process. Another limitation is the fact that only few subjects re-evaluated their opinions and perceptions on the simulator after achieving expertise.

CONCLUSION

HoLEP-naïve urologists found that this simulator/ prostate model should be used for training and that they are important to assure patient safety. Most of the components of the model were found to be realistic, especially the instrumentation and laser tissue interaction. The model was able to reproduce levels of difficulty usually found in real life cases, with most difficult steps in the final two-thirds of surgery. Urologist expertise may influence the learning process of some steps.

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EDITORIAL COMMENT

Holmium laser enucleation of the prostate (HoLEP) has become an established surgical modality for the treatment of benign prostatic obstruction, particularly for larger glands or patients who require anticoagulation.[1] Despite the advantages of HoLEP, the steeper learning curve, and access to appropriate equipment has hindered widespread adoption.[2]

The study by Antunes et al evaluated implementation of a structured course consisting of video lectures, surgery observation, and simulator use. The simulator consisted of a prostate model as well as real endoscopic instruments. Forty HoLEP naïve urologists were enrolled to take the course and surveyed on their opinions of the usefulness, difficulty in a 14-step surgical technique, and future patient safety. Recruits included residents in training, urologists with significant but varying experience in endoscopic and open BPH surgery, including both academic and nonacademic urologists.

Overall, the urologists survey agreed that a HoLEP simulator is important and should be implemented in training. The respondents found the most realistic component of the simulator to be the instrumentation and the prostate model was considered the least realistic component. As acknowledged by the authors, only 8 urologists went on to adopt HoLEP and of the 7 that responded to follow-up surveys, the overall realism of the simulator was only 6.1 (1-10 scale). Thus, the validity of this model cannot be confirmed yet given the limited follow-up information. The study structure is strong, and the goals and implementation were clearly stated; however, it would be interesting to see if experienced HoLEP surgeons who participate in the simulation find it to be realistic and potentially beneficial to trainees.

This study is certainly timely in the fact that surgical simulation is becoming increasingly incorporated into training programs, given its ability to allow trainees to learn the technical and cognitive components of a particular procedure without placing a patient at risk.[3] HoLEP in particular is an important technology where surgical simulation could play an important role for helping it gain adoption by the broader urologic community. Other simulators have previously been evaluated and validated using virtual simulators rather than physical models, which were found to be acceptable.[4] Despite the implementation of different simulation strategies, it remains to be seen if simulation definitively improves patient outcomes or surgeon skill.

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AUTHOR REPLY

Holmium laser enucleation of the prostate (HoLEP) is the most complete and sophisticated surgical treatment for benign prostatic obstruction. No other technique is capable of removing so much tissue in such a minimally invasive manner. The great challenge of prostate surgeons is to develop methods to shorten and facilitate its learning curve. Simulators are attractive and safe tools that could serve this purpose.

The 2 main limitations of the simulator model used in our study are that it does not reproduce bleeding, and that it lacks a morcellation phase. Despite this fact, urologists' evaluation was positive. However, the validation of our modular teaching course was impaired by the unavailability of lasers in most of the facilities where trainees work. Acquisition of the HoLEP equipment will allow the evaluation of the course impact in a near future.

Simulators should also be tested in a prospective and controlled trial to allow the analysis of the real impact of this tool on the most common used outcome measure that is the enucleation rate. Whether the plateau will be achieved sooner among new users who took some time in the simulators or if they will help to increase the urologist's fidelity to the method, is not known. Until these questions are not resolved, it is the opinion of the authors that simulators are important tools that should be used during the HoLEP-naïve urologists learning curve.

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