

An eyes-wide-open approach to laser eye safety

Re: Canadian Urological Association best practice report: Holmium:YAG laser eye safety and laser-associated eye injury (CUAJ, Dec 2020)

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It was with great interest I read the Canadian Urological Association best practice report (BPR) on Holmium:YAG (Ho:YAG) laser eye safety and the accompanying commentary recently published.^{1,2} I commend the authors of the BPR on taking an evidence-based approach to laser eye safety, a topic that has previously received little attention but represents an integral part of modern urological practice. The Ho:YAG laser is one of the most commonly employed tools in urology for a multitude of endoscopic applications, and is frequently used not only by endourologists but also general urologists and trainees.

While safety is of the utmost importance, one must maintain a balanced, evidence-based approach to this and take into consideration a multitude of factors. Oftentimes, the absolute safest approach is simply not feasible in real life; otherwise, no one would cross the street for fear of being hit by a bus.

The available evidence regarding the potential for eye injury associated with the use of the Ho:YAG laser clearly illustrates that this risk is miniscule, and does not support the mandatory use of safety eyewear.¹ Despite the majority of urologists reporting that they do not routinely wear laser safety eyewear, no eye injuries have yet to be reported after over two decades of extensive use, in both official adverse event databases or the available published literature.¹ To further support this real-world data, a study in an ex-vivo model demonstrated no risk of eye damage with the laser fiber tip at least 5 cm away from the cornea, and that prescription eyewear provided equivalent protection to specially designed laser goggles.¹

While it was appropriately acknowledged that laser-associated injuries are likely under-reported, the fact that not a single eye injury associated with the Ho:YAG laser has ever been reported, despite over 20 years of widespread

use, undoubtedly establishes that this is an exceedingly rare event.^{1,2} Meanwhile, the overwhelming majority of urologists report the use of laser safety eyewear impedes their vision while operating, thereby placing the patient at risk for intraoperative complications, such as ureteral damage, perforation, and stricture formation.³ While the risk of ureteral injury during ureteroscopy is multifactorial, certainly, compromised vision of the surgeon is a contributing factor to this risk. When we consider the balancing of potential risks, the reported rate of ureteral injury is significantly higher than that of laser-associated eye injuries.

As physicians, it is our duty to not only ensure the safety of ourselves but of our patients, and similar to many other aspects of medicine, it is often a balancing act of risks and benefits; there is no perfect solution. Consequently, we are left to evaluate the best-available evidence and use this to inform our policies and practices; this is not a practical approach but an evidence-based one, using the same processes that we apply to the clinical care of patients. I suggest that we do not turn a blind eye to official hospital policy but instead apply the available evidence in an eyes-wide-open approach.

References

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