

# Intoxicated by technology: are we keeping our eyes on the prize?

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In recent years, technological advances such as wireless broadband internet connectivity and cellular telephony have changed our lives. We have become addicted to—and besotted with—technology. Adverts that tout lasers, stereotactic radiosurgery, and minimally invasive treatments are ubiquitous. Today, few major US hospitals are without a da Vinci<sup>®</sup> surgical robot (Intuitive Surgical Inc., Sunnyvale, CA), despite the staggering costs. Is this money well spent?

The surgical robot is certainly a powerful marketing tool. Patients want surgery to be minimally invasive and are particularly drawn to robotic intervention, seduced by the notion that the machine eliminates human error. To remain competitive in a technology-driven marketplace, hospitals must offer cutting-edge, state-of-the-art equipment. The main benefit of robot-assisted laparoscopic prostatectomy (RALP) from a surgical point of view is the shortened learning curve. What, though, should be the measure of RALP success—duration of hospital stay, long-term cancer control, or continence and erectile function? Is marketing, in fact, the major attraction of the robot? Does its use simply hasten a surgeon's ability to perform a procedure their patients want and need (Herrell SD and Smith JA Jr [2005] *Urology* 66 (Suppl):105–107)?

The fundamental measures of quality for any medical treatment are its safety and efficacy, which require meticulous documentation in well-designed clinical trials. Where are the trials that show superior outcomes with RALP? The short-term advantages of RALP are those of any laparoscopic procedure: reductions in hospital stay, blood loss, and pain. Yet hospital stays after open prostatectomy have fallen to near parity with those after RALP (Nelson B *et al.* [2007] *J Urol* 177: 929–931), and recent series reported no differences in postoperative pain or need for blood

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transfusion (Smith JA Jr [2004] *Am J Surg* 188: 63S–67S). Studies that report better outcomes with RALP than with open prostatectomy are limited to single-institution or single-surgeon experiences (Tewari A *et al.* [2003] *BJU Int* 92: 205–210; Ahlering TE *et al.* [2004] *Urology* 63: 819–822) that claim superior results compared with their own previous experience. Some surgeons might indeed perform better with robotic assistance than without. However, others do not, and their experience is rarely reported. Furthermore, patients treated during a surgeon's early RALP experience (at least 250 cases) might fare substantially worse than if the same surgeon had used the more-familiar open technique. Just because one surgeon achieves improved results with RALP does not necessarily mean it is a superior technique that should be used by all surgeons.

Just as patient care has benefited from some technological advances (the lithotripter, for example), others have proven harmful. Open radical prostatectomy has a well-documented track record that spans 25 years; this technique was used in the landmark trial that demonstrated a survival advantage for surgery over watchful waiting (Bill-Axelsson A *et al.* [2005] *N Engl J Med* 352: 1977–1984). Can we achieve the same long-term results with RALP in relation to cancer control and recovery of erectile function that we can with open prostatectomy (Ficarra V *et al.* [2007] *Eur Urol* 51: 45–56)?

In spite of the evidence to date, enthusiasts are convinced that RALP is superior to both laparoscopic and open prostatectomy techniques. Perhaps they are right; only time, experience, and properly performed studies will tell. Until then, we should focus our attention where it belongs: the prize for us as physicians is the best result for our patients, whatever the means. Technological advancements, no matter how compelling, are only as good as our ability to use them prudently and wisely.

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#### Competing interests

The author declared he has no competing interests.

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