Creating an Anesthesiologist-run Pacemaker and Defibrillator Service

Closing the Perioperative Care Gap for These Patients

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Historically, anesthesiologists have relied on a combination of three strategies for the perioperative management of pacemakers (PMs) or implanted cardioverter-defibrillators (ICD)—consulting a cardiologist, calling a “device rep,” and/or applying a magnet. However, none of these strategies provides ideal care for these patients. The first two options involve personnel who often are not immediately available and/or are unfamiliar with perioperative issues. All three options invite generic care not truly tailored to the patient, the procedure, or both. As one possible solution, Rooke et al.1 created an “Anesthesiology Device Service (ADS)” for the perioperative management of these cardiovascular implanted electronic devices (CIEDs) at the University of Washington. Five anesthesiologists learned to interrogate and program these devices to provide customized, optimized care for CIED patients undergoing surgery. This training was conducted by electrophysiologists and device company representatives; it consisted of required reading, 20 h of didactic sessions, and a minimum of 30 proctored CIED interrogations. In addition, the lead member of the ADS became a testamur of the International Board of Heart Rhythm Examiners (IBHRE) in Cardiac Rhythm Device Therapy.

In this issue of Anesthesiology, Rooke et al. offer insight into the planning and execution of this service, as well as report quality performance data comparing their ADS to patients managed by a typical academic electrophysiology/cardiology service (EPCS) over the first 4 yr of the ADS.

During this time, the ADS managed more than twice as many CIED patients than managed by the EPCS (548 vs. 250, respectively). The ADS resulted in a modest reduction in operative delays without appearing to compromise patient safety. On several occasions, the ADS successfully provided immediate intraoperative assistance for CIED malfunction or pseudomalfunction. The most serious error by the ADS was failure to suspend tachyarrhythmia detection preoperatively on one occasion. Another four errors were made by the ADS in restoring postoperative CIED function owing to CIED and programmer idiosyncrasies, but these errors were all promptly recognized and corrected. No apparent harm resulted from any of these errors, and the errors committed by the ADS appeared to decrease with experience. By comparison, the most common error made by the EPCS was failure to follow published perioperative management recommendations from the Heart Rhythm Society (HRS); unnecessarily programming CIEDs to pace asynchronously, which has the potential to induce malignant arrhythmias.2 Perhaps, the programming errors made by the EPCS imply less familiarity with perioperative advisories or best perioperative practices than members of the ADS.

The impetus to create this service arose primarily from perceived case delays involving CIED patients. Indeed, some institutions discourage scheduling these patients as a first case owing to the difficulty of obtaining timely preoperative assistance.3 Cardiologists have competing needs, and some institutions may have competing advisory services, such as in the case of electrophysiologists, who may have competing responsibilities to other medical or surgical specialties. CIEDs, however, are the most common cause of perioperative delays.4-6

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patients can improve outcomes and reduce costs by preventing case delays, cancellations, and even patient injury due to misunderstanding of a rhythm abnormality with inappropriate treatment.\textsuperscript{15} In the bundle-care Perioperative Surgical Home, physician anesthesiologists can add value to their practice by creating services tailored to these higher risk (and therefore higher cost) patients. Rooke et al. clearly demonstrate that physician anesthesiologists are indeed capable of providing the care recommended by the ASA and HRS. Although an ADS can improve efficiency, reduce delays and cancellations, and concurrently maintain and hopefully improve patient safety and outcomes, the training process is not a trivial undertaking and the complexity involved suggest that this approach may limit its utility to high-volume settings. Another key consideration is that this approach requires, and fosters, excellent collaboration between anesthesiologists and cardiologists.

Although the structured ADS established by Rooke et al. is novel, physician anesthesiologists at other centers now deliver expert CIED care. Currently, eight anesthesiologists from five institutions in five different states hold testamur status as Certified Cardiac Device Specialists from the IBHRE. We would like to see more physician anesthesiologists undergo this training, achieve IBHRE testamur status, and help solidify the role of physician anesthesiologists in the future of bundled care medicine.

Competing Interests

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