Dermatological Surgery in Patients with Cardiac Implantable Electronic Devices: A New Paradigm

Dear Editor,

The presence of cardiac implantable electronic devices (CIEDs) in our patients poses a challenge to dermatologic surgery. In the UK, over 56,000 CIEDs were inserted in 2013, whereas in India, 37,000 were implanted over a similar period.[1]

CIEDs are broadly divided into two categories—permanent pacemakers (PPM) and implantable cardioverter-defibrillators (ICDs). Pacemakers stimulate cardiac contraction using electrical impulses that are delivered via leads in the myocardium. An ICD detects abnormal heart rhythms and delivers antitachycardia pacing or shocks in response.

The primary concern with surgery in patients with CIEDs is the potential for electromagnetic interference (EMI) arising from electrosurgical techniques. The most relevant in dermatology practice is hyfrecation/electrocoagulation (low-powered monopolar or bipolar electrode). Serious adverse events include inappropriate defibrillation (ICDs) and pacemaker inhibition leading to asystole. In a 331-patient study, detectable EMI was present in 11% of the cases involving monopolar cautery but not bipolar cautery, and no serious adverse events were reported.[2] Modern pacemakers also have inbuilt protective measures designed to resist EMI.

Historically in the UK, dermatologic surgery in the patients with CIEDs was normally covered by local perioperative surgical guidelines. These mandated discussion with the cardiology team and the use of short bursts (<4 s) of bipolar cautery. In uncomplicated, non-pacemaker-dependent patients, no other measures were required. The new British Heart Rhythm Society 2016 guidelines, however, recommend routine monitoring of all patients with pacemakers undergoing surgery, regardless of dependency.[3] This minor change in practice makes little practical difference in general surgery, where patients are routinely monitored by anesthetists, but has significant ramifications for dermatologic surgery conducted under local anesthetic in the office setting. In India, the guidance is laid out in the Cardiological Society of India/Indian Heart Rhythm Society practice guidelines on follow-up of patients with PPM.[4] They are broadly similar to the historical practice in the UK, with no monitoring required and do not cover management of ICDs.

The recently published UK British Society for Dermatological Surgery guidelines[5] provide a pragmatic approach to harmonize the requirements of cardiac monitoring and the challenges posed by the office surgical environment of dermatology. Essentially, historical practice remains unchanged, with liaison with the pacing team and provision of a cardiac arrest trolley with defibrillator being of paramount importance. For surgery that is conducted within 5 cm of the CIED, the cardiac physiology team should be on standby in the event of any issues. If inhibition occurs then the device can be reprogrammed to "asynchronous" mode (fixed delivery of pacing) for the duration of the procedure. The patients with an ICD will require the device to be switched off for the duration of the procedure only. A key recommendation from the guidelines is the use of uncomplicated pulse oximetry to monitor the patient's pulse in all cases. This allows for relatively straightforward monitoring of patients versus a more technically demanding reading of an electrocardiogram monitor. In the event of any adverse events, the cardiac physiology team should be notified to arrange for device follow-up.

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References

1. Shenthar J, Bohra S, Jetley V, Vora A, Lokhandwala Y, Nabar A, *et al*. A survey of cardiac implantable electronic device implantation in India: by Indian Society of Electrocardiology and Indian Heart Rhythm Society. Indian Heart J 2016;68:68-71.
2. Gifford J, Larimer K, Thomas C, May P. ICD-ON registry for perioperative management of CIEDs: most require no change. Pacing Clin Electrophysiol 2017;40:128-34.
3. Thomas H, Turley A, Plummer C. Guidelines for the management of patients with cardiac implantable electronic devices (CIEDs) around the time of surgery. British Heart Rhythm Society, Chipping Norton, United Kingdom; 2016. Available from: http://www.bhrs.com/files/files/Guidelines/160216-Guideline%2C%20Peri-operative%20management%20of%20CIEDs.pdf. [Last accessed on 2017 Jan 21].
4. Rajgopal S, Kapoor A, Bajaj R, Vora A, Sethi KK, Sinha N, *et al*.; Cardiology Society of India; Indian Heart Rhythm Society. CSI/IHRS practice guidelines on follow-up of patients with permanent pacemakers: a Cardiology Society of India/Indian Heart Rhythm Society Task Force Report on practice guidelines

on follow-up of patients with permanent pacemakers. Indian Heart J 2012;64:S12-7.
5. Bray A, Wright B, Davies G. British Society for Dermatological Surgery (BSDS) and British Heart Rhythm Society (BHRS) guidance on implanted devices and dermatological surgery. British Society for Dermatological Surgery, London, United Kingdom; 2017. Available from: http://www.bhrs.com/files/files/Guidelines/170711-tl-BSDS%20BHRS%20Implanted%20Cardiac%20Devices%20Skin%20Surgery%20v1_8.pdf. [Last accessed on 2017 Aug 3].

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