Health economics of cardiac resynchronization therapy

Sir,

An evaluation of the health economics of cardiac resynchronization therapy such as the one undertaken by McAloon et al (vol 78(6), 2017, p. 312; https://doi.org/10.12968/hmed.2017.78.6.312) would be incomplete without mention of the prevalence of cardiac resynchronization therapy-related infection (Romeyer-Bouchard et al, 2010), and the financial consequences of the increasing burden of device-related infection with time (Kennergren, 2015).

One study of 303 consecutive patients who had been followed for a mean period of 31 months after implantation of cardiac resynchronization therapy found the prevalence of device-related infection was 4.3% (Romeyer-Bouchard et al, 2010). Device-related infections result in long hospital stays and high morbidity, because when infection occurs, 'it has indeed become an axiom that complete removal of the infected device and lead system is required for either pocket or lead infection' (Manolis and Melita, 2016). Although there is a mortality risk associated with leaving an infected device in place, device extraction itself is hazardous, and carries with it the risk of death (Manolis and Melita, 2016).

Furthermore, recipients of cardiac resynchronization therapy-defibrillator devices who develop device-related infection have significantly (P<0.001) increased mortality (*Table 2* of the article) compared to device recipients without infection, and this mortality risk persists even after discharge from hospital, 'suggesting an ongoing increased risk of death associated with cardiac implantable electronic device infection that persists for at least 1 year' (Sohail et al, 2015).

Over and above these considerations, an analysis based in the USA showed that the total cost of an infection can be up to $53 000 per case, and the annual cost of device-related infections could be at least $285 million. In another evaluation of cardiovascular implantable electronic device infections the adjusted cost ratio (with or without infection) remained significantly (P<0.001) greater than unity for each of the following: cardiac resynchronization therapy device (with or without defibrillator), pacemaker, and implantable cardioverter defibrillator respectively (Sohail et al, 2011). Therefore, the combined economic and health burden of device-related infection may counteract the benefits of the device (Kennergren, 2015).

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