Lead extraction: Definition standards

To the Editor,

We have read with great interest the article entitled "Cardiac implantable electronic device lead extraction using the lead-locking device system: keeping it simple, safe, and inexpensive with mechanical tools and local anesthesia" by Manolis et al. in the latest issue of the Journal (1). The authors have presented their experiences regarding lead extraction using locking stylet. However, some important issues should be mentioned. Manuscripts regarding cardiac implantable electronic devices and their removal should contain standard definitions to avoid confusion; some of such important definitions include Lead Removal (the removal of any lead using any technique), Lead Explant (the removal of any lead with <1 year implant time using simple traction without specialized tools other than simple stylets), and Lead Extraction [the removal of any lead using specialized extraction tools, removal from a route other than via the implant vein, or any lead with >1 year implant time (2, 3)]. In the current study, reported time range since implantation was 0.3–19 years; thus, there were some leads with <1 year implant time (although locking stylets may have been implemented in some leads with <1 year implant time), and 6 leads were removed with simple traction as stated by the authors. The Lead Locking Device (LLD®) (The Spectranetics Corp.) family has different sizes accommodating a wide range of leads as follows: LLD#1 (0.013"–0.016"), LLD#2 (0.017"–0.026"), LLD#3 (0.027"–0.032"), LLD EZ (0.015"–0.023"), and LLD E (0.015"–0.023"). All except LLD E (85 cm) have 65-cm working length. Definitions of success are also important. Complete procedural success defining the removal of all targeted leads and materials without any permanently disabling complication or procedure-related mortality, clinical success defining the removal of all targeted leads and materials or the retention of a small part of <4 cm that does not negatively impact the outcome, failure defining no achievement of complete procedural and clinical success, or the presence of any permanently disabling complication or procedure-related mortality should be mentioned (2, 3). In the study, partial lead removal was reported in 2 patients. We believe that clinical success was achieved in 1 patient, whereas failure was observed in the other patient. Lead endocarditis is defined as positive blood cultures with lead vegetation(s). In a study, the lead involvement was present in 88% of patients with pocket infection (3, 4). However, in the current study, the exact rate of lead endocarditis was poorly understood. A total of 20 patients with defibrillator leads (14 ICDs and 6 CRTs) were presented. Therefore, all CRTs should have had defibrillator function although a CRT without defibrillator function was illustrated in Figure 2. Another important safety issue related to lead extraction is the availability of a peripheral balloon during the procedure to gain time for emergent surgery when a major vein rupture, such as superior vena cava rupture, occurs. All removal procedures were performed without the need of general anesthesia. However, the usage rate of short-acting agents, such as fentanyl, midazolam, and propofol, was not reported in the current study. Finally, there were inconsistencies regarding numerical values, such as pacing leads in 78 patients, lead endocarditis in 4 or 9 patients, device infection in 46 or 47 patients, simple traction in 6 patients+the sole use of the LLD® in 39 patients+additional sheath use in 15 patients, and lead numbers, in Table 2.

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