Safety and efficacy of percutaneous lead extraction of cardiac implantable electric devices in the elderly

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**Introduction**: Background With the incidence of cardiac implantable electric device (CIED) infection increasing, lead extraction (LE) has become an important treatment. Elderly patients are at particular risk of infection, but may hesitate to consent to LE out of unfounded concerns that it is a dangerous procedure. The aim of this study was to clarify the safety and effectiveness of LE in elderly patients.

**Methods**: Methods We retrospectively analyzed the characteristics, device type, indications, procedures, and clinical results of LE in a non-elderly group (NEG; 14-79 years of age, n=39) and elderly group (EG; >80 years of age, n=25) who underwent percutaneous LE between April 2014 and December 2018 at our hospital.

**Result**: Results Average age was 70 years in NEG and 85 years in EG. LE indication in the NEG was infection in 27 patients (69%) and non-infection in 21 (21%), while that in the EG was infection in all 25 patients (100%). Blood stream infection was detected in 7 NEG patients and 3 EG patients, with methicillin-resistant staphylococcus epidermidis being the most common. All LE procedures were performed under general anesthesia in an operating room with cardiovascular surgeon back-up. Excimer laser sheath (n=78 leads), laser with mechanical sheath (n=44 leads), mechanical sheath (n=1 lead), and manual traction (n=1 lead) techniques were used to extract a total of 128 leads (82 in the NEG and 46 in the EG) after an average implantation time of 5.0 (2.0, 12.0) years in the NEG and 8.5 (3.0, 12.8) years in the EG, which were not significantly different (P =0.24). The complete procedural success rate was similar between the NEG and EG (98.8% vs. 100%). Only 1 procedure-related complication was observed in the cohort (cardiac tamponade in a NEG patient).

**Conclusion**: Conclusion Percutaneous LE was both safe and successful for elderly patients as well as in the younger population.