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Transvenous lead extraction clinically successful in 98 percent of cases

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Transvenous lead extraction (TLE) is clinically successful in more than 98% of cases according to data from the European Lead Extraction ConTRolled (ELECTRa) registry presented for the first time today at ESC Congress 2014 by Dr Maria Grazia Bongiorni, chair of the registry's executive committee.

Dr Bongiorni said: "The number of cardiac implantable electronic devices (CIED) implant procedures has grown in recent years. Despite advances in technology the number of complications has increased and leads are often the cause. TLE is the gold standard to treat CIED complications including lead malfunction."

She added: "TLE is an expanding field with lead extractions next year expected to reach approximately up to 5 000 in Europe and 30 000 worldwide. The indications for TLE are expanding as lead extraction technology improves and extractors become increasingly skilled. But until now there has been no large scale registry on TLE in Europe."

ELECTRa is the first large multicentre registry on TLE in Europe. It is conducted by the European Heart Rhythm Association under the ESC's EORP programme. The registry enrolled 3 524 consecutive patients from 67 centres in 19 countries between November 2012 and June 2014. There were no specific mandatory protocols for the procedure, materials, techniques of extraction, or treatment after the procedure during this observational study.

Baseline characteristics show that 72% of patients were male with a mean age of 65 years, 57% had hypertension and 22% had diabetes. A total of 6 433 leads were extracted, including 4 870 pacing leads and 1 563 defibrillation leads.

The registry found that TLE was clinically successful in more than 98% of cases, with a failure rate of 1.5%. Infections were the predominant indication for lead extraction in 52.7% of cases. The remaining 47.3% had non-infective indications including non-functional leads (27.4%), upgrading (7%), recalled leads (5.6%), signs and symptoms of venous occlusion (4.8%), cardiac perforation (2.1%) and other indications (0.4%). Dr Bongiorni said: "Our results show that this procedure is becoming increasingly effective. Unlike the latest European survey of current practice in TLE we found an increasing rate of non-infective indications."

The overall frequency of any complication prior to discharge was 7.9%, of which 2.7% were major and 5.2% were minor complications. The rates of major and minor complications were 2.5% and 4.5% in high volume centres and 3.9% and 8.2% in low volume centres, respectively. The death rate was 1.4% overall, 1.2% in high volume centres and 2.5% in low volume centres.

Dr Bongiorni said: "These complication rates are comparable with those reported in the literature and are in line with other interventional cardiology procedures. TLE is a safe procedure although physicians can further reduce complications through training, accreditation and standardisation of procedures."

She added: "As expected, complications were lower in high volume centres. This is particularly evident if we look at the percentage of deaths, which doubled in low compared to high volume centres. We found that the largest differences in complication rates between high

volume and low volume centres occurred after the procedure. This probably indicates a poorer ability of less skilled centres to manage patients post-operatively. Databases are needed to monitor low volume centres for their adherence to recommendations on TLE."

Dr Bongiorni continued: "Non-infective indications for TLE are expected to become even more common as it becomes good practice to remove unused leads, which can cause infections. It is plausible that in future, the non-infective and difficult extractions will be concentrated in centres with the most experience. This will ensure the safety and efficacy of TLE procedures that are not yet considered mandatory but should reduce the risk of future complications."

She concluded: "The next step for ELECTRa will be to collect data on the long-term safety and efficacy of the TLE procedure. We also hope to extend the registry to countries outside Europe."

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