



HIGHLIGHTS - DEVICE IMPIANTABILI

VENERDI' 20 SETTEMBRE

SALA ITALIA

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HIGHLIGHTS

DEVICE IMPIANTABILI

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FIRST EUROPEAN EXPERIENCE OF TLE FACILITATED BY SHOCKWAVE INTRAVASCULAR LITHOTRIPSY: A JOINT PROCEDURE OF EPS AND INTERVENTIONAL CARDIOLOGISTS

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Background: Cardiovascular Implantable Electronic Device (CIED) infection is a common indication for CIED lead extraction (TLE). However, the TLE procedure is still challenging with high complication risk due to several factors. In particular, a long dwelling time is usually associated with the presence of dense fibrosis and calcifications encasing the pacing leads, thus increasing the complexity and the risk of TLE. Great improvements in TLE techniques have occurred in recent years with the development of new advanced tools and devices. The Shockwave intravascular lithotripsy (IVL) system is a balloon-based technology recently introduced to treat severe coronary and peripheral calcification with high procedural success and very low rates of vascular complications. The data of its role in TLE are scarce.

Purpose: To assess feasibility and efficacy of Shockwave IVL pretreatment during extraction of long dwell time pacemaker and defibrillator leads.

Methods: Data were obtained from consecutive patients undergoing TLE with IVL pre-treatment at our centre, from July 2023 and April 2024. TLE was performed in a hybrid surgical operating room under GA with immediate surgical assistance available. A temporary transvenous pacing through femoral vein was placed. The pocket site was conventionally prepared and the device disconnected. All leads were then prepared using lead locking stylets. After initial assessment, due to extensive adhesions and calcifications IVL pre-treatment was performed through a 7F venous femoral sheath advancing a 8.0 x 60 mm M5 plus lithotripsy balloon to the SVC over a BMW 0.014 inch guidewire supported by a Terumo multi-purpose catheter. The system was then advanced to the axillary vein and positioned adjacent to the leads. Once the balloon location was confirmed optimal, it was inflated up to 4 atm and a series of 150 pulses delivered. After deflation, it was drawn down toward the SVC and another series of 150 pulses was delivered. Once in the SVC, the guiding sheath was used to help maintain adequate proximity of the balloon to the leads. Following IVL pretreatment, leads were extracted using mechanic dilator sheaths

Results: IVL pretreatment was performed in 4 patients (3M; mean age: 63 years) referred to our centre for TLE in CIED infection: 2 dual-chamber ICDs, 1 CRT-D device and 1 dual-chamber pacemaker for a total of 3 RA passive fixation leads, 1 RA active fixation lead, 2 dual coil passive fixation leads, 1 single coil active fixation ICD lead, 1 RV passive fixation lead, 1 CS lead. Dwell time was extremely long ranging between 10 and 24 years. TLE following IVL was successful in all cases, without any residuals. No complications occurred. Post-procedural echocardiography demonstrated no pericardial effusion with normal tricuspid valve function.

Conclusions: To the best of our knowledge, this is the first European experience of challenging transvenous lead extractions facilitated by IVL to fracture calcified tissue around pacing leads. In presence of long dwell time leads with dense calcifications, IVL may represent a safe and adjunctive measure to ease TLE, reducing procedural complexity, times and complications.

