

Salvage of Infected Cardiovascular Implantable Electronic Devices

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Background:

The recommended treatment of infected cardiovascular implantable electronic devices (CIED) is complete removal and replacement. This procedure involves the risk of significant morbidity and mortality.

Objective:

Provide updated data of a novel treatment for salvage of infected CIEDs where infection is limited to the pocket and/or proximal part of leads,

Methods: we designed a continuous, in-situ-targeted, ultra-high dose antibiotics (CITA) treatment under semi-closed, regulated, negative pressure-assisted wound therapy (RNPT) system (CITA-RNPT). We applied CITA-RNPT to consecutive patients diagnosed with: pocket and/or proximal lead infection, extruded CIEDs, or expanding hematoma.

Results:

31 patients, including 55% referrals from other centers, were treated by CITA-RNPT and, if indicated, by minor surgical procedures. They were followed for 23.5±18.1 months (range 3-62). CITA-RNPT provided desired therapeutic antibiotics serum levels, whereas pocket concentrations obtained were 2-3 orders of magnitude higher, effectively eradicating the infection and salvaging 61% of CIEDs following a single course, and 87% following additional courses of treatment. CITA-RNPT failed in only 4 patients (13%), whose device was subsequently extracted uneventfully. Treatment was associated with no major complications.

Conclusions:

We have shown in a relatively small cohort, yet including high-risk patients that CITA-RNPT is safe and effective, achieving salvage of 87% of infected CIEDs restricted to pocket and/or proximal portion of leads. If confirmed by larger multicenter studies CITA-RNPT, applied by experienced teams, may offer an additional therapeutic option prior to removal of CIED as recommended by the current guidelines.