

Taurolidine containing antimicrobial CIED wash to prevent infection

BACKGROUND

Cardiac implantable electronic device (CIED) infection has risen faster than the volume of procedures. Many measures against CIED infection have been tried, but only perioperative antibiotics and an antibiotic drugs eluting envelope have proved effective. Taurolidine is a long established antimicrobial agent with a wide range of chemical activities and biological effects. The impact of TauroPace™, a taurolidine containing solution on CIED infection was assessed in a population at high anticipated risk for CIED infection in this observational study.

METHODS

All the hardware (leads, suture sleeves, pulse generator) were washed and the device pocket irrigated with an adjunct antimicrobial solution, which could be 3% hydrogen peroxide (H₂O₂), taurolidine in a galenic formulation or TauroPace™ (TP, Tauropharm, Bavaria, Germany), during any invasive procedure (new implantation, pulse generator replacement, lead repositioning or insertion, system upgrade or downgrade, revision) involving a CIED system at the authors' institute.

Before 01/01/2020, the choice of antimicrobial solution was at the operator's discretion. These procedures were evaluated retrospectively. With change of policy on the first of January 2020, in every consecutive patient and procedure only TP was used. Patients were enrolled and followed consecutively in order of appearance. All CIED procedures performed at the author's institute between 01/01/2017 and 28/02/2022 were included for analysis.

Patients who received the galenic taurolidine formulation were excluded from analysis. The primary end point was CIED infection according to the Novel 2019 international diagnostic criteria [2]. The secondary end points were any adverse or serious adverse event possibly related to the use of the antimicrobial solution, the CIED or the procedure and all-cause mortality.

The follow-up duration was standardised to 3 months as only acute and sub-acute infection post CIED procedure was of interest. The procedures and not the patients were the data units.

DISCUSSION

Our analysis of time until major CIED infection included patients with higher anticipated risk for CIED infection in the TauroPace™ group (4.4 [0-13] vs. 4.0 [0-10]) and hinted at a lower rate of major CIED infection after TauroPace™ application, with procedure times being shorter and adverse events being rarer than in current literature. Rates of major CIED infection above 1% at one year after use of H₂O₂ and 0.4% for TauroPace™ align perfectly with results of randomised controlled trials. (Tarakji, K.G., et al.; WRAP-IT 2019)

CONCLUSION

The use of TauroPace™ as an irrigation solution during CIED procedures could be a cause of a lower rate of acute and delayed CIED infections compared to hydrogen peroxide 3% in this study. The clinical efficacy of TauroPace™ in reducing CIED infections needs to be investigated in a randomised controlled trial.

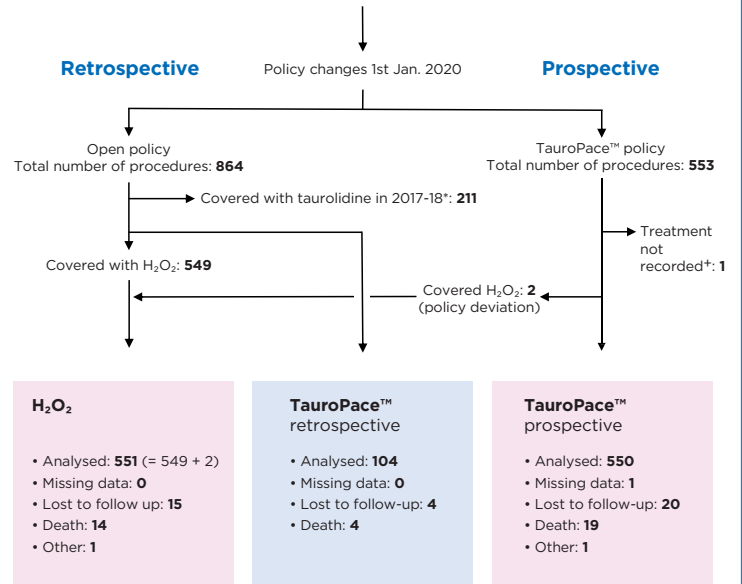
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You can read the published study abstract by scanning the QR code.

CIED interventions

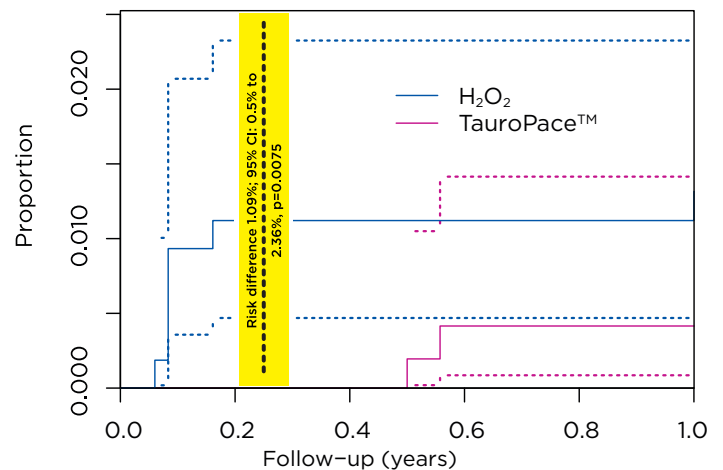
1st January 2017 to 28th February 2022
total number of procedures: 1,417



* No infection occurred after procedures covered with the galenic taurolidine formulation in 2017/2018. However, as the galenic formulation is no longer commercially available, these procedures were excluded from analysis

+ No TauroPace™ use was documented in a revision procedure that occurred within 24 hours of an index procedure covered with TauroPace™. That revision procedure was excluded from analysis. The patient experienced no infection during follow-up.

Results



Risk set:	654	609	486	386	357
	551	514	496	487	472

Adjusted for number of:	HR	95% - confidence interval
unadjusted	0.4083	0.1067-1.562
Host risks	0.353	0.09098-1.369
Procedure & CIED risks	0.409	0.1068-1.566
All risks	0.3711	0.0965-1.427

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