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A Silver Lining in the VAD Sky: A Prospective Randomized Controlled Study of a silver patch

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Purpose:

Left Ventricular Assist Device (LVAD) therapy is used successfully long term for patients with advanced heart failure. The complication burden of driveline infections (DLI) remains a major barrier to optimizing VAD patient's life expectancy and quality of life (QOL). No widely accepted protocol exist. We posited that a silver-based dressing with weekly changes would reduce the rate of DLI.

Methods:

We deployed a single center randomized controlled trial to evaluate the efficacy of a silver-based driveline dressing. The intervention arm consisted of a silver patch not activated with saline and occlusive dressing changed weekly. The control arm of the study consisted of an occlusive dressing changed every 3 days. Patients were randomly assigned to one of the study arms and followed for 24 months post implant. End points evaluated were DLI rate, total DLI rate and time to first DLI

Results:

We enrolled 25 patients, 14 randomized to the intervention arm and 11 to the control arm. 2 patients in the intervention arms were excluded from the secondary analysis after the intervention protocol was updated to remove saline activation of the silver patch. Baseline characteristics did not differ significantly between the control and intervention group (mean age 50 vs 53, BMI 30 vs 36, Intermacs 1-2 54 vs 45%). The first DLI rate (0.51 vs. 3.14/100 patient-month, $p=0.05$), as well as the total DLI rate (0.51 vs. 6.28/100 patient-month, $p=0.02$) was lower in the intervention arm. There were no multi microbial infections in the intervention arm. The mean time to first DLI was longer in the intervention arm (432 vs. 187 days).

Conclusions:

A weekly driveline dressing protocol that includes a non activated silver patch provides significant protection against DLI and multi microbial infection. The study is limited by its sample size from a single center. A multi-center trial should be undertaken to further assess the efficacy of this dressing protocol.

Table 1 Baseline Characteristics

Arm	Mean age at implant (years)	BMI (mean \pm SD)	Male (%)	INTERMACS Profile 1-2 (%)	Ethnicity (%) White/ Hispanic/ Black
Control	53	36 \pm 7.1	75	45	27/ 18/ 45
Intervention	50	30 \pm 7.9	100	54	25/ 58/ 17

