

A POLYHEXANIDE CONTAINING BIO-CELLULOSE DRESSING IN THE TREATMENT OF PARTIAL-THICKNESS DERMAL BURNS

J Alblas, PA, RJ Klicks, MD, A Andriessen[#], PhD

Wound Expert Center, Bovenij Hospital, Amsterdam, The Netherlands. j.alblas@bovenij.nl
[#]Andriessen Consultants, Malden & UMC St. Radboud, Nijmegen, The Netherlands. anneke.a@tiscali.nl



Introduction:

A clinical evaluation was conducted to look at the clinical efficacy of a *monofilament debridement (DB) product and a polyhexanide (PHMB) containing **bio-cellulose dressing in partial-thickness burn patients. Previous studies showed the **dressing to be effective in burn¹ patients as well as in young children with lacerations². Especially the pain reducing properties are deemed attractive for its use in painful partial-thickness burns.

Methods:

Local ethics committee approval was obtained and patients consented. Case ascertainment was used. Parameters were: Debridement efficacy, pain reduction (VAS, 10 point-scale), healing time and wound bed condition, comparing day 0 (start) versus day 14 (end), as well as, ease of dressing use and treatment costs.

Case 1:

62-year-old woman with a deep scald on her left breast, abdomen and arm. Debridement with *DB and covered with the **bio-cellulose+PHMB dressing, which was left in situ for 7 days. At day 0, VAS: 9, reduced to VAS: 3 immediately after dressing application.



Fig. 1a:
Situation at day 3, showing the dressing in place



Fig. 1b:
Situation at day 7, the dressing came off as the burns had epithelialized

Case 2:

46-year-old woman with a deep scald on her left hand. Debridement with *DB and covered with the **bio-cellulose+PHMB dressing, which was left in situ for 8 days. At day 0, VAS: 8, reduced to VAS: 2 immediately after dressing application.



Fig. 2a:
Situation at day 3, showing the dressing in place



Fig. 2b:
Situation at day 5, part of the dressing is lifting due to epithelialization.



Fig. 2c:
Situation at day 10.

Results :

Ten patients were included with partial thickness burns on their hands, arms, thorax, feet and thighs. Healing time for n=8 was a mean of 10,5 days (range 7 – 12 days), with the exception of two patients with diabetic foot syndrome, who suffered full thickness burns (grade 4) on their feet. They were included to evaluate temporary measures before surgical intervention. One debridement session with *DB was sufficient in the eight patients with partial thickness burns.

Mean patient reported pain at day 0 was VAS: 9.7 SD ± 0.02 (range: VAS 10 – 8.4). Pain reduction (VAS: 3.4 directly after dressing application and VAS: 0 after 3 days) was fast and occurred almost immediately after dressing application. There were fewer dressing changes compared to previous regimes as the dressing could be left in place for the study duration. Ease of use for *DB and the **bio-cellulose dressing was rated excellent. Typical cases are shown to illustrate the results.

Conclusion :

Patients reported a fast pain reduction in the treated partial-thickness burns. The results indicate the *monofilament debridement product and the PHMB-containing **bio-cellulose dressing to be a safe, effective and cost effective in the treatment of partial-thickness burn injuries. The approach may also be useful for deeper burns as a temporary measure before surgical treatment is performed.

Case 3:

68-year-old man with a grade 4 burn on his left foot caused by a stove. He has diabetes mellitus and a history of neuropathy and diabetic foot syndrom. (Fig. 3a) Debridement with *DB (Fig. 3b – Fig. 3d) and covered with the **bio-cellulose+PHMB dressing (Fig. 3e) which was left in situ for 4 days (Fig. f). At day 4 the patient was referred to the surgeon for further treatment.



Fig. 3a:



Fig. 3b:
The blisters on the front and back of the toes are leaking and therefore removed



Fig. 3c:
Blisterroof has been removed using *DB. The product after use is indicate with the arrow



Fig. 3d:
Due to the neuropathy assessment of the depth of the burn on the second toe is difficult. However the extend of the necrosis indicates a Deep dermal to full thickness burn.



Fig. 3e:
After debridement the **bio-cellulose + PHMB dressing was applied and left in situ for 4 days.



Fig. 3f:
Situation upon referral at day 4

References :

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2. Elzinga G, van Doorn J, Alblas JG, Andriessen A et al. Clinical evaluation of a PHMB-impregnated biocellulose dressing on paediatric lacerations. *J Wound Care* . 2011 Jun;20(6):280-4.