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Abstract Title:	**Early Experience Using Bromelain-Based Enzymatic Agent in the Management of Deep Partial and Full Thickness Burns**
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Objective:	• Discuss how NexoBrid® debridement represents a new option for burn debridement of deep partial to full thickness burns. • Recognize that early promotion of multidisciplinary burn team education and usage of multimodal analgesia is necessary for adequate pain control with enzyme application.
Abstract:	Introduction: Early surgical excision of burn eschar with autografting is the stalwart treatment for managing deep partial and full thickness burns. This has been in practice since the 1960s with clear benefits in reducing systemic inflammatory response and expediting reconstruction. Surgical excision involves removal of some undeclared tissue in cases where the nonviable and viable tissue are indistinguishable. As such, there may be room for an enzymatic adjunct which is selective for nonviable burn. NexoBrid® is a bromelain based enzymatic agent approved for use in burn debridement in Europe in 2013. We review our early experiences using NexoBrid®. Methods: This is a retrospective review of patients enrolled in our tertiary burn center for the NexoBrid® expanded access treatment protocol (NEXT) from July 2020 to June 2021. Inclusion criteria included patients who were 18 years of age or older, had non-electrical and non-chemical burns, and who had less than 30% total body surface area. Loose keratin layers are first removed, and a petroleum ointment is used to outline target burn wound. NexoBrid® gel is applied to the burn and secured with an occlusive dressing for four hours. The dissolved eschar is next removed bluntly and a new dressing soaked with antibacterial solution applied. The wound bed characteristics are assessed two hours later and determination of completion of debridement is made. At this point in time, deep dermal and full thickness burns were identified for grafting. Wound preparation at time of grafting consisted of chlorhexidine wash, followed by betadine prep, and a light dermabrasion or scrub brush to demonstrate punctate bleeding. Results: Twelve patients met inclusion criteria from July 2020 to June 2021. The mean age of our study population was 42 years (range 21-65), while the mean treatment TBSA was 11% (IQR 11). The mean time from burn center admission to NexoBrid® application was 2.0 days. Complete eschar debridement was assessed in all patients after single application. Compartment pressures were assessed in six limbs with circumferential burn, finding a mean pressure was 15 mmHg prior to enzyme application, 5 mmHg post application. Ten patients received early autografting with a mean time from NexoBrid® application to autografting of 2.0 days. Two patients with deep partial thickness burns epithelialized in 10 days after skin substitute application using porcine urinary bladder matrix. Split thickness autografts were used in eight patients with

	mean area of 782 cm2 (IQR 377 - 1436). Autologous cell suspension was used in eight patients with mean area of 2314 cm2 (IQR 1193 - 2510), four of which were paired with split thickness grafts. Two of the twelve cases required 1454 cm2 split thickness autografting after autologous cell suspension alone was used at index grafting. These areas were deep dermal injuries with loss of some adnexal structures. None of the split thickness grafts required regrafting. As for our results implementing our analgesic/sedation strategy, the mean morphine milligram equivalents (MME) required for NexoBrid® application was 176.3, while the mean MME to TBSA ratio was 28. The MME usage trended down over time. Conclusions: The application of NexoBrid® permits early assessment of burn injury depth which can be paired with autografting or application of skin substitutes according to depth. There is significant opportunity for improvement in experience acquisition. We found education of nursing and ancillary staff to be particularly helpful. Usage of narcotics reduced over time. Regional anesthesia proved very helpful in one single extremity burn. Certain outcome measures such as modulation of the systemic inflammatory response syndrome and the reconstructive timeline should require further study.
Disclosures:	Wilson Huett, MD, No Disclosures Andrew Bright, No Disclosures