

# THE EFFECTIVENESS OF AN ENZYME ALGINOGEL IN A TRAUMATIC HEAD WOUND.

Jeanette King, Tissue Viability Specialist Nurse, Salford Royal NHS Foundation Trust

## Introduction

Each year, 1.4 million people attend emergency departments in England and Wales with a recent head injury and about 200,000 people are admitted to hospital. Most patients recover without specific or specialist intervention, but others experience long-term disability or even die from the effects of complications that could potentially be minimised or avoided with early detection and appropriate treatment.<sup>1</sup>

The most important factor in the management of traumatic wounds is meticulous irrigation and debridement. Dead tissue, foreign debris, devitalised skin and haematoma must be removed to reduce the number of contaminating bacteria and deprive those that remain of their breeding environment. This helps to protect the patient from the spread of infection and ensures that the remaining tissue is viable, with a good blood supply that should heal with minimal scarring. Where sharp debridement is not appropriate, various topical applications can be effective, including hypochlorites, enzymatic agents, hydrogels, alginates and hydrocolloids.<sup>2</sup>

This case study assesses the wound management of a 76 year old male patient who was independently mobile, a non-smoker and lived with his son. He had a medical history of hyponatraemia, arthritis, and atrial fibrillation. The patient had a traumatic head wound involving haematoma with necrosis to the top of his head which had been swabbed and debrided. On presentation it was necrotic, sloughy, with signs of infection, odour, and exudate and had been left uncovered prior to tissue viability intervention.

## Method

The treatment plan involved autolytic debridement using an antimicrobial gel to reduce levels of infection and colonisation burden to the wound bed and so prevent surgical debridement intervention and the involvement of plastic surgery. Flaminal Hydro (Flen Health UK) in conjunction with Tegaderm Foam (3M, USA) were chosen as they were considered atraumatic and non-adherent.

## Results

Daily dressings were undertaken with the above regimen. Debridement of haematoma and necrotic tissue continued and in 14 days the treatment aims were achieved. Flaminal Hydro softened the haematoma and necrotic tissue faster than expected and the patient felt that the treatment was comfortable.



13/06/16



17/06/16



01/07/16

## Discussion

Models such as the TIME framework (tissue management, inflammation and infection control, moisture balance, and epithelial [edge] advancement) offer a logical and systematic approach to wound bed assessment.<sup>3</sup> An expert panel identified four key functions of Flaminal dressings that address key elements of the TIME framework - continuous wound debridement; antimicrobial activity; maintenance of a moist wound healing environment; and protection of wound edges and epithelial cells.<sup>4</sup>

## Discussion (continued)

As clinicians frequently have to deal with several aspects of the TIME framework simultaneously, these multiple modes of action can also be cost-effective.<sup>4</sup> An expert panel also reviewed evidence from a number of clinical studies which demonstrated that Flaminal reduced levels of pain leading to increased patient comfort.<sup>4</sup>

Flaminal Hydro is indicated for low to moderate exuding wounds and is intended to promote moist wound healing by forming a moist gel in the presence of wound fluid and, by association, aid autolytic debridement.<sup>5</sup> In addition, the constituents of two enzymes, glucose oxidase and lactoperoxidase, have the capacity to control the bioburden of the wound in a safe, sustained fashion. These enzymes work together to form free radicals via hydrogen peroxide, which destroy the cell walls of adsorbed bacteria in a manner similar to innate human white cell defences. As this is a selective process, only the adsorbed bacteria are destroyed and not the essential regenerating cells of the healing wound.<sup>5</sup> Flaminal's unique enzyme component delivers an antimicrobial function with negligible risk of resistance and cytotoxicity.<sup>4</sup>

Flaminal has also demonstrated faster healing rates and reduced hospital stay with the associated potential cost savings in a retrospective cohort study assessing burn wounds treated with Flaminal compared with 1% silver sulphadiazine cream.<sup>6</sup>

## Conclusion

This case study demonstrates the effective exudate absorptive capacity, autolytic debridement, and broad spectrum antimicrobial activity of Flaminal Hydro in a traumatic head wound whilst ensuring patient comfort and promoting wound healing. Successful treatment also managed to avoid the potential cost of surgical debridement and involvement of plastic surgery.

### References

- 1) National Institute for Health and Care Excellence (NICE, 2014) Head injury: assessment and early management. NICE guidelines (CG176). Published date: January 2014
- 2) Dearden C, Donnell J, Donnelly J, Dunlop M (2001) Traumatic wounds: cleansing and dressing. *Nursing Times* 97(28):50-2
- 3) Falanga V (2004) Wound bed preparation: science applied to practice. In: European Wound Management association Position Document. Wound bed preparation in practice. MEP Ltd, London
- 4) Beele H, Durante C, Kerihuel S, Rice S, Rondas A, Stryja J, White R (2012) Expert consensus on a new enzyme alginogel. *Wounds International* 3(2):42-50
- 5) White R (2006) Flaminal: a novel approach to wound bioburden control. *Wounds UK* 2(3): 64-69
- 6) Hoeksema H, Vandekerckhove D, Verbelen J et al (2013) A comparative study of 1% silver sulphadiazine (Flammazine) versus an enzyme alginogel (Flaminal) in the treatment of partial thickness burns. *Burns* 39(6): 1234-41