

**Micropore particle technology effectively treats
infected wounds and pressure injuries in patients with spinal cord injury.**

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Introduction

Spinal cord injury-induced immune deficiency syndrome (SCI-IDS) is believed to result from the loss of neuronal regulation of the immune response in body regions below the injury level. The result is reduced ability to fight infections and to achieve wound healing with the consequence that even small scratches to the skin surface can lead to large non-healing wounds that slowly grow in size and lead to severe follow-on complications.

Micropore particle technology (MPPT) is a CE-marked treatment for wounds. MPPT is not antimicrobial but acts as a passive immunotherapy that treats wound infections and advances healing. By a combination of absorption, capillary action and evaporation, it removes exudate from the wound surface and in parallel removes toxins and enzymes, secreted by bacteria and fungi to inhibit the immune cells, and creates holes in the surface of biofilm. This combination disrupts the weaponry of microorganisms and returns control of the wound to the immune system. In a comparative clinical study, it was able to remove wound infections 60% quicker than antibiotics and antiseptics.

The purpose was in a case-series to evaluate the use of MPPT in individuals with SCI in wounds below the level of injury.

Methods

Cases were identified in collaboration with SIA, the UK Spinal Injuries Association, and the NHS. The wounds were washed with water, dried, a 1-3 mm layer of MPPT was applied to the entire wound surface and covered with a highly permeable dressing. The wound was allowed access to air as much as possible. MPPT was applied once daily until the infection was removed.

Results

MPPT was in all cases able to reduce the infection. The outcome depended upon the state of the wound at start of treatment.

For wounds and pressure injuries less than 2 months old, MPPT removed the infection and led to closure.

For stage 3 pressure injuries, even when many years old but without complicating features such as tunnelling, MPPT was able to promote closure, usually in less than 3 weeks following daily application for 3-4 days.

For older stage 4 pressure injuries associated with secondary complications such as osteomyelitis, cellulitis and extensive tunnel formation, MPPT was able to bring the tissue infection under control in areas where it was possible to apply it to the wound surface and to remove associated cellulitis. However, if the network of tunnels in the area was extensive and prevented application of MPPT throughout their structure, it would not be possible to remove the infection residing in these. The same was necessarily the case for osteomyelitis. In these cases, MPPT was used to reduce the tissue infection in preparation for surgical intervention to address tunnelling and osteomyelitis and post-surgically to support the healing process.

Discussion

The study found that MPPT is an effective wound treatment in SCI-IDS. An important goal must be to implement early treatment while the injury is young. This would reduce the number of pressure injuries requiring surgical intervention, secondary complications, treatment duration, costs, and impact on patient quality-of-life.