



AB069. SOH23ABS_192. Effect of a surgical adjuvant on dermal fibroblast migration using an *in vitro* wound healing model

Stephanie O'Callaghan, Cathriona Foley, Henry Redmond

Department of Academic Surgery, University College Cork, Cork, Ireland

Background: Post-operative wound healing complications associated with prolonged inflammation and subsequent immunosuppression are a proven risk factor for recurrence. Surgical adjuncts have the potential to reduce prolonged inflammation and immunosuppression. Thus, we evaluated the effect of the surgical adjuvant, 1,4,5-oxathiazinane-4,4-dioxide (OTD), a structural analogue of Taurultam derived from anti-inflammatory taurolidine, on human dermal fibroblast (HDF) cells involved in wound healing.

Methods: HDF cells were treated with five concentrations of OTD over 18 hours to assess migration and beyond to assess wound closure. Photographs were obtained at nine timepoints during this period using Leica Las X software and light microscope. Gap area for each image was calculated using Image J version 1.53t and a macro extension for wound sizing. Area in μm^2 was delineated with reference to a scale bar.

Results: Treatment with OTD demonstrated a dose-dependent arrest in fibroblast migration. This was most pronounced at 3–6 hours, where relative to the control ($751,435.6 \mu\text{m}^2$, 6 hours), wound area was greater for concentrations 0.75 mm ($1,059,097 \mu\text{m}^2$, 6 hours), 1 mm ($1,493,802 \mu\text{m}^2$, 6 hours), and 1.25 mm ($1,911,118 \mu\text{m}^2$, 6 hours). Relative to 0 hour, for concentrations 1 and 1.25 mm, wound area was greater at 3 and 6 hours, however

0.75 mm area reduced. Wound closure occurred at 24 hours in the control whereas this was extended by 0.75 mm (30 hours), 1 mm (48 hours), and 1.25 mm (non-closure).

Conclusions: OTD arrests migration of fibroblasts however does not impact proliferation and wound closure was observed in four out of five OTD concentrations within 48 hours.

Keywords: Fibroblasts; migration; oxathiazinane dioxide; surgical adjuvants; wound healing

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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