

AB101. SOH23ABS_100. Prophylactic use of local antibiotics in open fractures: a systematic review and meta-analysis

Dhruv Kapoor¹, Ross Condell², Niamh Kennedy³, Peyman Bakhshayesh⁴

¹Department of Surgery, Cork University Hospital, Wilton, Cork, Ireland; ²Department of Orthopaedics, University Hospital Waterford, Waterford, Ireland; ³Department of Surgery, St James's Hospital, James Street, Dublin, Ireland; ⁴Major Trauma Centre, Department of Orthopaedic Trauma, Leeds General Infirmary, Leeds, UK

Background: The management of open long bone fractures is well described and has been standardised through a number of well-established guidelines. However, there is no consensus regarding the application of local antibiotics into the open fracture site as a means of reducing infection rates.

Methods: A systematic review and meta-analysis were undertaken as per PRISMA guidelines. PROSPERO Registration CRD42022323545. PubMed, EMBASE, Scopus and CENTRAL were the databases assessed. The Newcastle Ottawa Scale and the Rob 2 Tool were used to assess bias. A qualitative synthesis of all included studies and meta-analysis of suitable subgroups was undertaken.

Results: In total, 12 studies [11 observational, 1 randomized control trial (RCT)] assessing 2,431 open fractures were included for analysis. All compared the addition of a local antibiotic therapy to a standard treatment versus the standard treatment alone. The methods of delivery were vancomycin powder (4 papers), tobramycin polymethylmethacrylate beads (4 papers), gentamicin coated intramedullary (IM) nails (2 papers), gentamicin injections (1 paper) and antibiotic released IM core cement (1 paper). The addition of vancomycin powder did not decrease infection rates in comparison to intravenous antibiotics

alone (OR 1.3, 95% CI: 0.75–2.26). Antibiotic coated IM nails appear to have an association with lower infection rates than standard IM nails. Polymethylmethacrylate (PMMA) antibiotics have shown varied results in reducing infection rates depending on the individual studies.

Conclusions: There are numerous methods available to deliver antibiotics locally to an open fracture site. Further high-quality research is required to provide a definitive conclusion on their efficacy irrespective of delivery method.

Keywords: Open fracture; local antibiotics; systemic antibiotics; trauma; orthopaedics

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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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