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Abstract:

Introduction-Recently, there has been both immense interest and controversy regarding a randomised, controlled trial which showed antibiotics to be effective in the treatment of chronic low back pain (disc herniation with Modic Type 1 change). While this research has the potential to result in a paradigm shift in the treatment of low back pain, several questions remain unanswered.
Purpose/AimThis systematic review aims to address these questions by examining the role of bacteria in low back pain and the relationship between bacteria and Modic change.
Materials and MethodsWe conducted electronic searches of MEDLINE and EMBASE and included studies that examined the relationship between bacteria and back pain or Modic change. Studies were rated based on their methodological quality, a best-evidence synthesis was used to summarise the results, and Bradford Hill's criteria were used to assess the evidence for causation.
ResultsEleven studies were identified. The median (range) age and percentage of female participants was 44.7 (41-46.4) years and 41.5% (27-59%), respectively, and in 7 of the 11 studies participants were diagnosed with disc herniation. Nine studies examined the presence of bacteria in spinal disc material and all identified bacteria, with the pooled estimate of the proportion with positive samples being 34%. *Propionibacterium acnes* was the most prevalent bacteria, being present in 7 of the 9 studies, with median (minimum, maximum) 45.0% (0-86.0) of samples positive. The best evidence synthesis found moderate evidence for a relationship between the presence of bacteria and both low back pain with disc herniation and Modic Type 1 change with disc herniation. There was modest evidence for a cause-effect relationship.
Conclusion(s)We found that bacteria were common in the spinal disc material of people undergoing spinal surgery. There was moderate evidence for a relationship between the presence of bacteria and both low back pain with disc herniation and Modic Type 1 change associated with disc herniation and modest evidence for causation. However, further work is needed to determine whether these organisms are a result of contamination or represent low grade infection of the spine which contributes to chronic low back pain.
KeywordsBacteria, Disc, Infection, Low back pain, Modic change
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Biography

Donna Urquhart is a National Health and Medical Research Fellow in the Monash University Department of Epidemiology and Preventive Medicine and a physiotherapist with over 15 years of experience in the management of chronic pain. She has published more than 70 peer-review papers and has been awarded 5 prestigious national grants (2 as CIA). She has authored an invited book chapter in an international text and has been awarded an international investigator award for her novel work on body composition and pain. She is on the International Editorial Board for Journal of Physiotherapy and a reviewer for international/national treatment guidelines, grants and conferences.

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