



AB030. 239. Pharmacological agents in musculoskeletal intervention: efficacy, safety, and recommendations

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Background: To conduct a comprehensive review of the literature regarding the use of steroids and local anaesthetic in spinal epidurals for the treatment of pain, and to formulate the evidence based recommendation regarding the safest and most efficient formulation of the above drugs.

Methods: A systematic review of the available literature was conducted, primarily via pub med, giving particular importance to randomized control trials, and review articles; the articles were scrutinized for methodology, clarity, consistency, reproducibility, and the collective findings were combined to formulate a clear and concise recommendation for the combination and use of steroids and local anaesthetic in epidurals for the treatment of back pain.

Results: The practice of epidural injections for the relief of back pain is an evidenced based practice provided that technical standards are met. The contents of the injectate however vary considerably between centres. Of the commercially used local anaesthetics, ropivacaine is the

most neurotoxic, while bupivacaine is the most cardiotoxic, myotoxic, and chondrotoxic. The CNS system however is more sensitive to the toxic effects of local anaesthetic than is the cardiovascular system. The main concern with epidural steroid injections is when inadvertent intra-arterial injection occurs with particulate material, with complications well documented in the literature. Of the commercially available steroids, dexamethasone is the only non-particulate. The evidence regarding the superiority of particulate steroids is equivocal. When combined with dexamethasone, lidocaine does not precipitate, while bupivacaine may rarely form small crystals without causing precipitation. Ropivacaine in contrast precipitates. Variations in the artery of Adamkiewicz are less than 1% below L3; inadvertent intraarterial injection risk is therefore higher at L3 and above. No significant difference was found in effectiveness of pain relief between 4mg, 8mg and 12 mg of dexamethasone.

Conclusions: For epidurals at the level of L3 and above, low dose (4 mg) dexamethasone combined with bupivacaine is recommended. For levels below L3, particulates are less likely to cause adverse effects and may be used.

Keywords: Spinal epidural; steroids; local; anaesthesia; systematic; review

doi: 10.21037/map.2018.AB030

Cite this abstract as: Rahimi S, Hodnett PA. Pharmacological agents in musculoskeletal intervention: efficacy, safety, and recommendations. *Mesentery Peritoneum* 2018;2:AB030. doi: 10.21037/map.2018.AB030