

Patient Outcomes Following the Use of Methylprednisolone Acetate 40mg Particulate Steroid Versus Dexamethasone 3.3/6.6mg Non-Particulate Steroid in Foraminal Epidural Injections for the Management of Radicular Pain due to Disc Prolapse

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Aims: To compare patient outcomes following the use of either methylprednisolone acetate 40mg particulate steroid versus dexamethasone 3.3/6.6mg non-particulate steroid in foraminal epidural injections (TfESIs) for the management of radicular pain due to lumbar disc prolapse

Study Design: Retrospective review of prospective collected data

Background: Disc herniation can lead to compression of spinal nerves, resulting in radicular pain. TfESIs are believed to improve radicular pain by reducing possible inflammation and irritation surrounding the nerve root.¹ In recent years, a series of papers highlighted possible risks associated with the use of particulate steroids in TfESIs ² leading to a shift in clinical practice to the use of non- particulate steroids in place of particulate steroids

Methods: Patients who received a primary TfESI between 11/01/13 and 13/01/19 for the management of radicular pain due to lumbar disc prolapse were categorised into two groups depending on which steroid they received; dexamethasone (DXM) or methylprednisolone (MPA). We prospectively collected Patient Reported Outcome Measures (PROMs), which included VAS back, VAS leg and ODI scores. These were collected both pre- and post- TfESI. Results were compared and analysed.

Results: 120 patients were included in the study. Of these, 52 patients received DXM and 68 MPA. Prior to the TfESI, there was no statistical significance between the VAS and ODI scores in both drug groups; VAS back (p=0.713), VAS leg (p=0.237) and ODI (0.457). Following the TfESIs, no statistically significant difference was observed between both drug groups; VAS back (p=0.814), VAS leg (p=0.908) and ODI (p=0.179). In the DXM group, no statistically significant difference was observed in reduction of VAS back (p=0.842) or VAS leg (p= 0.363) between DXM 3.3mg and 6.6mg, however significant difference in reduction of ODI (p=0.005) in the 3.3mg DXM group over the 6.6mg DXM group was observed.

No significant difference was observed in patient measured outcome following the primary TfESI between the two drug groups, but significantly more patients who received DXM 6.6mg felt it worked but pain reoccurred than those who received DXM 3.3mg (p= 0.02). Although more patients in the MPA group went on to receive further injections and/or spinal surgery, no statistically significant difference was noted in outcome between the two cohorts in terms of repeat injections (p=0.459) or surgical intervention (p=0.22). Significantly more patients who received the 6.6mg DXM TfESI required repeat injections than those having received the 3.3mg dose (p=0.039). There were no complications in either group.



Fig. A demonstrating disc prolapse at L4/L5

	VAS Back Pre	VAS Back post	VAS leg pre	VAS leg post	ODI pre	ODI post
DXM 3.33	7.05 (0.033)	5.26 (0.038)	8.25 (0.021)	5.53 (0.045)	56.4 (0.262)	34 (0.348)
DXM 6.6	6.93 (0.021)	4.88 (0.028)	6.76 (0.032)	5.30 (0.034)	43.15 (0.210)	34 (0.228)
All DXM	6.98 (0.018)	5.07 (0.022)	7.37 (0.021)	5.39 (0.027)	47.22 (0.176)	36.38 (0.194)
MPA	7.14 (0.018)	5.16 (0.020)	7.84 (0.013)	5.33 (0.019)	49.96 (0.141)	42.07 (0.160)

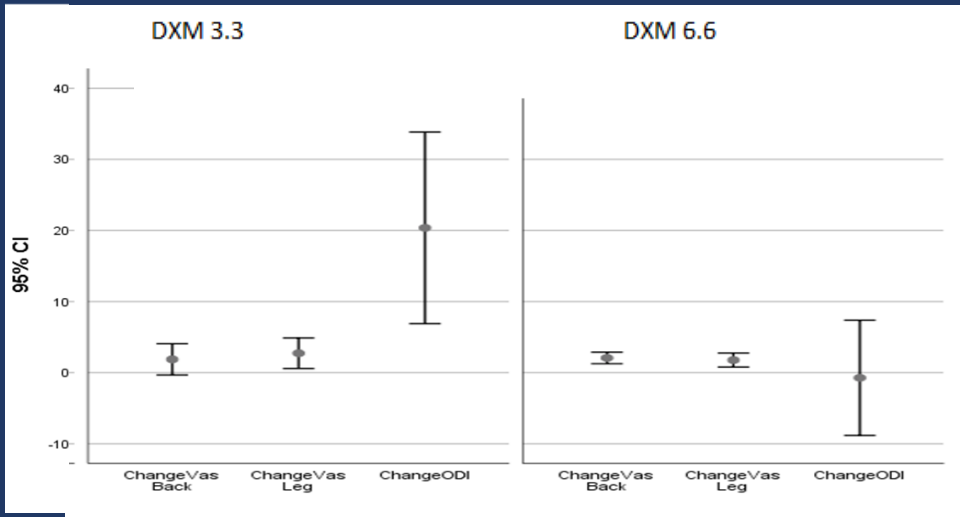


Fig 1. Comparing scores based on drug dose

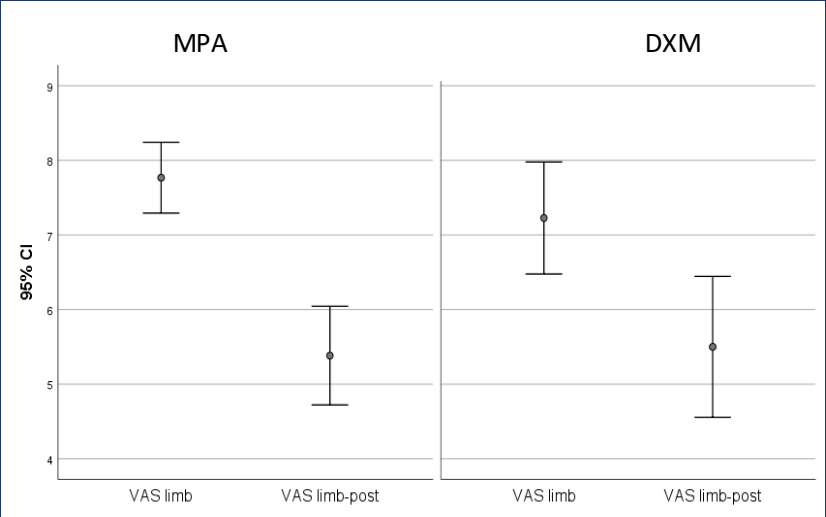


Fig 2. Change in VAS back score pre- and post- TfESI

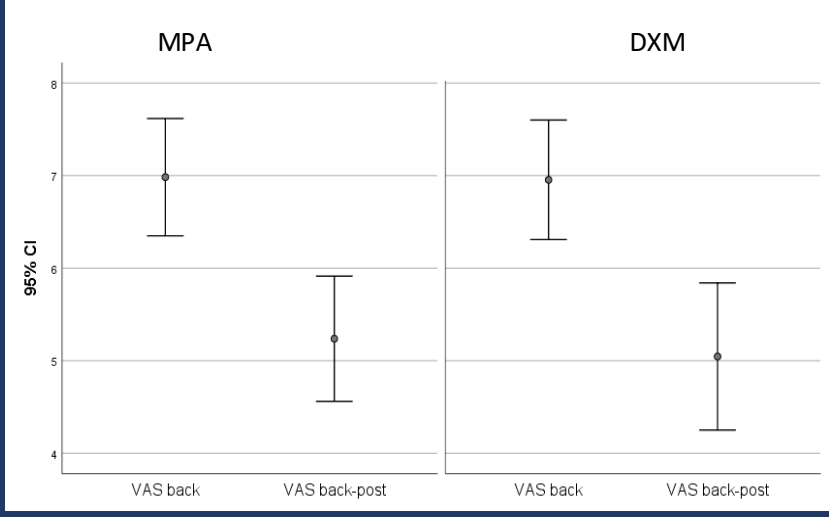


Fig 3. Change in VAS leg score pre- and post- TfESI

Conclusion: The results show that there is no conclusive evidence of the superiority of one drug over the other in the management of radiculopathy following disc prolapse. Both MPA and DXM showed a mean decrease in VAS back, VAS leg and ODI scores. DXM 3.3mg showed greater reduction in VAS leg and ODI scores, and fewer patients required a repeat TfESI following this dose. As there is no statistically significant impact on the patient outcome depending on the drug, the current practice of using non-particulate steroids during TfESIs seems appropriate in radicular pain management.