

Dispersal Pattern of Injectate after Lumbar Interlaminar Epidural Spinal Injection Evaluated with Computerized Tomography

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Abstract

Study Design Retrospective analysis of lumbar computed tomographic epidurograms.

Objective To evaluate the dispersal pattern of injectate after interlaminar lumbar epidural steroid injections.

Summary Prior studies have evaluated the dispersal patterns of injectate after lumbar epidural steroid injections using fluoroscopy with varying results. To date, there have been no studies evaluating the dispersal pattern utilizing computerized tomography.

Methods Ten epidurograms were analyzed after lumbar interlaminar epidural steroid injection. The epidurograms were examined, evaluating the dispersal pattern in longitudinal flow as well as circumferential flow. In addition, pain values were assessed with the visual analogue scale.

Results Mean diffusion in the rostral direction was 9.8 cm (standard deviation 4.0 cm, range 4.0 to 15.0 cm). Mean diffusion in the caudal direction was 5.4 cm (standard deviation 1.4 cm, range 3.0 to 8.0 cm). Both rostral and caudal flow had a p value < 0.001. The circumferential flow was 360 degrees in 9 of 10 cases. In addition, there was significant (p = 0.006) reduction in pain.

Conclusion Interlaminar lumbar epidural steroid injections are an effective treatment modality for various spine-related conditions. The injectate diffuses throughout the

epidural space with nearly uniform circumferential flow as well as significant rostral and caudal flow.

Keywords

spine related conditions - lumbar - interlaminar - epidural - steroid - injection - epidurogram - computerized tomography

以電腦斷層掃描評估腰椎板間脊髓硬膜外注射後藥物的擴散模式

研究設計 回顧性分析以電腦斷層掃描腰椎的硬膜外影像。

目的 評估腰椎板間脊髓硬膜外注射類固醇後的擴散模式

總結 以往的研究已經以透視檢查評估椎板間脊髓硬膜外注射後藥物的擴散模式，結果各不相同。至目前為止，均沒有研究利用電腦斷層掃描方式評估擴散的模式，。

方法 為 10 個腰椎板間脊髓硬膜外注射類固醇後的硬膜外影像進行了分析。評估縱向流動及週向流動的擴散模式。此外，並以視覺類比量表為疼痛指數值進行了評估，。

結果 在頭端方向的擴散平均為 9.8 厘米（標準偏差是 4.0 厘米，範圍是 4.0 至 15.0 厘米）。平均向尾部的擴散平均為 5.4 厘米（標準偏差是 1.4 厘米，範圍是 3.0 至 8.0 厘米）。頭端和尾部流動的 P 值 < 0.001。在 10 個病例中有 9 個的週向流動為 360 度。此外，疼痛顯著地減少（P = 0.006）。

結論 在各種與脊柱有關的不同情況下，腰椎板間脊髓硬膜外類固醇注射是一種有效的治療方法。注射液在整個硬膜外的範圍以近乎均勻的週向流動擴散，並顯著地在頭端和尾部流動。