

P 1-102

Distribution Patterns of Solution according to Injection Volume in Caudal Epidural Injection

Jin Hyuk Jang^{1*}, Jaeki Ahn^{1†}

Inje University Sanggye Paik Hospital, Department of Rehabilitation Medicine¹

Introduction

Caudal epidural injections are commonly used to treat patients with low back pain and radiating pain to lower extremity. It has been proposed that in addition to the anti-inflammatory effects, injected material displaces the dura forward and inward, producing a stretch of the nerve roots that leads to lysis of neural adhesions. The purpose of this study was to show distribution patterns of injection solution according to injection volume and ascending level in C-arm guided caudal epidural block.

Method

The subjects are composed of 30 patients with low back pain and radicular leg pain. Needle insertion was performed through ultrasound-guiding at prone position. The level of injected solution was checked by C-arm guidance after injecting every 1ml of solution, which is a total of 20ml injection volume of dexamethasone(5mg), 9ml of 1% lidocaine and 10ml of contrast medium. The treatment effect was measured by Visual Analogue Scale (VAS) and Oswestry Disability Index (ODI). Pain was assessed using VAS and ODI at baseline, two weeks and four weeks following a single caudal epidural block.

Results

Successful needle placement occurred in all cases. Until the S1, L5, L4 level were reached, the mean sof required injection volume(ml) were 1.97 ± 1.2 , 3.87 ± 3.0 , and 6.6 ± 1.7 , respectively. Until the L3, L2, L1 level was reached, the means(ml) were 10.9 ± 3.6 , 15.1 ± 4.2 , and 14.5 ± 5.4 , respectively. Until T10, T11, T12 level was reached, required injection volume were 16, 12, 17ml in 1 case, respectively. After injecting total 20ml of solution, the ascending level were L5 in 3 cases, L4 in 3 cases, L3 in 3 cases, L2 in 15 cases, L1 in 3 cases, T10-T12 in 1 case each. In the comparison of the VAS before and 2 weeks and 4 weeks after injection, the means were 6.4 ± 1.4 , 4.5 ± 2.0 , and 4.0 ± 2.6 , respectively, which demonstrated statistically significant decrease($p < 0.05$). In the comparison of the ODI before and 2 weeks and 4 weeks after injection, the means were 17.7 ± 7.7 , 11.3 ± 6.6 , and 11.4 ± 6.9 , respectively, which also demonstrated statistically significant decrease ($p < 0.05$).

Conclusion

Caudal epidural injection could be performed more accurately in all cases under ultrasound guidance at needle insertion. Unlike previous studies, we have shown the injection dose reaching each vertebral level by confirming the spread of the contrast agent per 1 ml volume.