

Comparison of intravascular injection rate between blunt and sharp needles during cervical transforaminal epidural block

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Background: Cervical transforaminal epidural block (CTEB) is a useful option in the diagnosis and treatment of cervical radicular pain. However, inadvertent intravascular injection can lead to severe neurologic complications. Blunt needles are considered to displace instead of penetrate vessels due to their dull needle tip.

Objective: To investigate whether there is a difference between blunt and sharp needles in intravascular injection rates during CTEB.

Methods: After Institutional Review Board approval, 108 participants undergoing CTEB for treatment of radicular pain resulting from spinal stenosis and herniated nucleus pulposus were randomly assigned to one of two needle groups (blunt needle or sharp needle). The needle position was confirmed using biplanar fluoroscopy and 2 mL of nonionic contrast medium was injected to detect intravascular injection. Intravascular injection was defined as the contrast medium spreading out through

the vascular channel during injection under real-time fluoroscopy.

Results: The intravascular injection rate was not significantly different between the blunt-needle and sharp-needle groups (35.2% vs., 33.3%, $P>0.05$). The procedure time was longer in the blunt-needle group than in the sharp-needle group ($101.00 \pm 12.4s$ vs., $56.67 \pm 8.3s$, $P<0.001$).

Limitations: This was a single-center study. Additionally, the physicians could not be blinded to the type of needle used.

Conclusions: In the present study, use of a blunt needle did not reduce the rate of intravascular injection during CTEB compared to use of a sharp needle. In addition, procedure time significantly increased with blunt-needle use compared to sharp-needle use.

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