

PENETRATION OF PROPHYLACTIC CEPHAZOLIN IN LUMBAR INTERVERTEBRAL DISC DURING MICRODISCECTOMY

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Objectives. Spondylodiscitis is a rare complication of microdiscectomy procedure in spine surgery with an incidence of 3–4%. Objective of this study was to measure levels of cephazolin in the intervertebral disc during microdiscectomy and determine if they reach the stated minimum inhibitory concentration against *Staphylococcus spp.* (4 mg/L) following intravenous administration.

Materials and Methods. A total of 40 patients, including 21 males and 19 females, with a median age 41 years (range 36–50), received 2 g intravenous cephazolin before 1 or 2-level lumbar microdiscectomy. Venous blood was collected before administration of cephazolin and again at disc removal. Blood and intervertebral disc tissue was assayed by high performance liquid chromatography to measure cephazolin concentrations.

Results. The interval between cephazolin administration and tissue sampling ranged from 25 to 93 minutes. All of the disc samples had detectable levels of cephazolin at the time the disc was removed. Cephazolin concentration in the serum (range 85–206 mg/L) was higher than in the disc (range 3.1–26.3 mg/L). Two of the samples had cephazolin levels lower than 4 mg/L, and 8 samples had levels lower than 8 mg/L. Serum cephazolin concentration did not relate to disc concentration at a given time or the time from cephazolin administration.

Conclusions. Cephazolin diffuses into the human disc in detectable concentrations. The concentration of the antibiotic exceeded the minimum inhibitory concentration in the disc tissue against most susceptible bacteria during the period between 30 and 90 minutes in 95% of patients.