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Does the serum calcium level play a role in lumbar disc herniation and degeneration?

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Introduction & Objectives:

Calcium plays a major role in bone remodeling. Objective of the study was to identify the role of serum calcium in lumbar disc herniation and degeneration (LuDHD).

Methods:

Subjects undergoing lumbar discectomy (n=106) and age, sex matched controls (n=106) who did not have a previous history of back pain and did not receive any medication for back pain during the past one month were recruited for this study. A serum aliquot (200 µL) separated from venous blood was analysed using KONE 20 XT clinical analyzer. Independent t-test was done to compare the means and $p < 0.05$ was considered as significant.

Results:

Among the disc herniated subjects 38 had disc degeneration. The mean calcium levels in the test (9.72 ± 1.8 mg/dL) and controls (10.34 ± 1.5 mg/dL) were within the normal reference range. Serum calcium level was below the reference range (< 8.5 mg/dL) in nine test subjects (8.4 %) and one control subject. Among the test group, fourteen subjects had above the upper margin of the reference level (≥ 10.5 mg/dL), while the control group consisted of 31 subjects. There was a significant difference in serum calcium level between the test and control subjects ($p < 0.05$).

Conclusion:

Though there was a significant difference in serum calcium level between the test and control groups, mean values in both groups were within the normal range. Only 8.4% of the test subjects had low level of serum calcium. Hence, calcium level is not a major contributing factor for lumbar disc degeneration and herniation.