Smoking as a predictor of negative outcome in lumbar spinal fusion.

Andersen T, Christensen FB, Laursen M, Høy K, Hansen ES, Bünger C.

Abstract

STUDY DESIGN: A review of the smoking habits in 426 patients who had been followed prospectively for 2 years after a lumbar spinal fusion procedure was conducted.

OBJECTIVE: To analyze the effect of pre- and postoperative smoking on clinical and functional outcome after lumbar spinal fusion.

SUMMARY OF BACKGROUND DATA: Several animal models have shown a negative effect of nicotine on spinal fusion. At this writing, the clinical effect of nicotine on spinal fusion has not been fully clarified.

METHODS: The study comprised 426 patients who underwent lumbar spinal fusion between 1993 and 1997. These patients received a mailed questionnaire regarding their tobacco consumption before and after their surgery. All other data, including preoperative clinical and functional status, were collected prospectively during a 2-year follow-up period. To assess functional outcome, the Dallas Pain Questionnaire was used.

RESULTS: The questionnaire was answered by 396 patients (93%). Of these patients, 54.5% (20% more than the background population) were smokers before the operation. Smoking of more than 10 cigarettes daily before the operation and attempted fusion at two or more levels increased the risk of nonunion: odds ratio, 2.01 (P < 0.016) and odds ratio, 3.03 (P < 0.001), respectively. Smoking cessation increased fusion rates to near those of nonsmokers. Smoking had no influence on functional outcome, as assessed by the Dallas Pain Questionnaire, but preoperative smoking predicted a negative answer to the question "Would you undergo the same treatment again, now that you know the result?" (odds ratio, 1.65; P < 0.054).

CONCLUSIONS: Smoking was shown to have a negative effect on fusion and overall patient satisfaction, but no measurable influence on the functional outcome as assessed by the Dallas Pain Questionnaire.

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