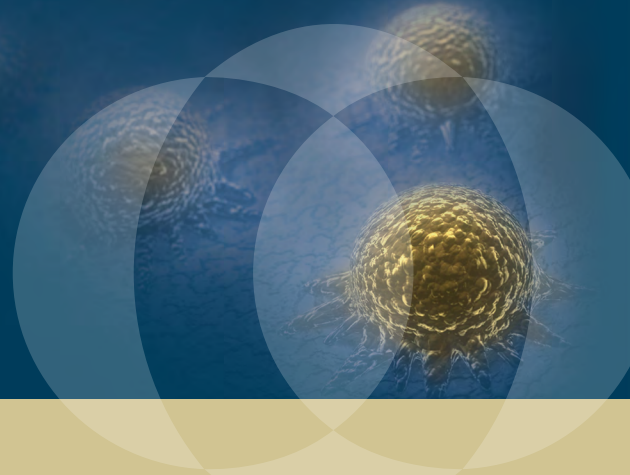


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Clinical Review

Use of ViviGen in 4- and 5-Level Instrumented Posterolateral Fusion: Results in Patients with Past or Current Nicotine Use vs. Non-users

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OBJECTIVES

Low back pain (LBP) is the leading cause of absence from work, disability, and impaired quality of life. If non-operative treatments fail to provide relief, fusion surgery may be indicated. Nicotine use is associated with an increased risk of non-union in spine surgery.³ This subanalysis of a larger retrospective study compares fusion results in past or current nicotine-using patients to non-users who underwent 4- or 5-level instrumented posterolateral fusion (IPLF) with ViviGen Cellular Bone Allograft (V-CBA).

METHODS

Retrospective data were collected from patients who had undergone IPLF surgery by one surgeon between January 1, 2015, and March 31, 2018, in which V-CBA was mixed with local autograft. Fusion status was determined based on bridging bone per the Lenke scale and posterior hardware status (intact). Lenke "A" was defined as "definitely solid fusion with bilateral stout fusion masses present" while B was "possible solid with unilateral large fusion mass and a contralateral small fusion mass". Fusion was assessed at terminal visit, which ranged from 6-29 months in this cohort. This subanalysis compares fusion results of former or current nicotine-using patients to non-users who underwent 4- or 5-level IPLF.

RESULTS

This subanalysis included 20 non-users and 19 former/current nicotine users who had undergone 4-level surgery, and 18 non-users and 17 former/current users who had undergone 5-level surgery. All 4- and 5-level patients, regardless of nicotine use, had successful fusion, which was defined as Lenke scale A or B. For 4-level surgeries, 80% of non-users and 68% of current/former nicotine users had Lenke A fusion. For 5-level surgeries, 83% of non-users and 88% of current/former nicotine users had Lenke A. The remaining patients had Lenke B fusion.

CONCLUSIONS

The use of V-CBA combined with local autograft resulted in successful fusions in all 4- and 5-level patients (331 levels) who underwent IPLF. These results are particularly robust given that 48% of these patients were former or current nicotine users, which is known to interfere with fusion success.

REFERENCE

3. Berman D, Oren JH, Bendo J, Spivak J. The Effect of Smoking on Spinal Fusion. Int J Spine Surg 2017, 11 (4)

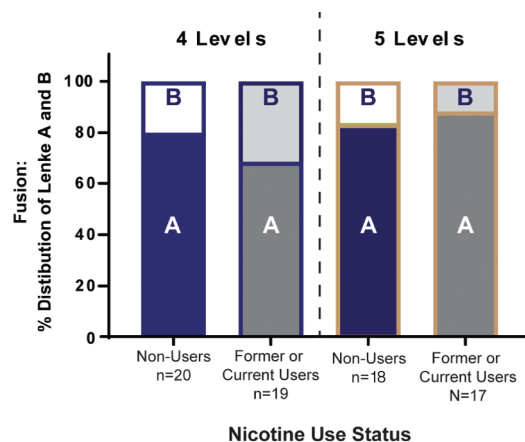


Figure 1. All patients in 4- and 5-level surgeries experienced fusion distributed between Lenke A and B regardless of nicotine use. No Lenke C or D non-unions occurred.