

## 論 文 要 旨

### 〔 Effects of intravenous sedation on autonomic nerve activity and the psychological state during tooth extraction: A prospective non-randomized controlled trial 〕

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#### **Abstract**

#### ***Purpose***

Intravenous sedation is considered to decrease patient anxiety and tension during dental treatment, thereby reducing fluctuations in autonomic nerve activity and the risk of medical emergencies. We hypothesized that intravenous sedation would suppress the sympathetic nervous system during tooth extraction and relieve patient anxiety. Accordingly, the purpose of this study was to investigate the effects of intravenous sedation on autonomic nerve activity and psychological state during impacted mandibular third molar (IMTM) extraction.

#### ***Methods***

This prospective study included 40 healthy women scheduled for IMTM extraction under local anesthesia alone (control group; n = 20) or local anesthesia and intravenous sedation (sedation group; n = 20); of these, 34 women were evaluated. Heart rate variability (HRV) was analyzed to evaluate autonomic nerve activity. HRV and circulatory dynamics were measured during the treatment. The Modified Dental Anxiety scale and State-Trait Anxiety Inventory (STAI-S and STAI-T) scores were obtained before treatment. STAI-S

scores were also obtained after treatment. Descriptive and bivariate statistical analyses were conducted, and a  $P$ -value  $<.05$  was considered statistically significant.

### ***Results***

The low frequency/high frequency ratio was lower in the sedation group than in the control group ( $P < .01$ ). Compared with the control group, the sedation group showed a significantly greater decrease in post-treatment STAI-S scores relative to pretreatment scores ( $P < .01$ ).

### ***Conclusions***

The findings suggest that sedation suppresses the sympathetic nervous system during IMTM extraction and decreases anxiety after the extraction. Further research should elucidate the mechanisms by which sedation suppresses the sympathetic nervous system.