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## 7AP1-2

### Changes in heart rate variability and QT interval dispersion during remifentanil-propofol co-sedation in neurosurgical patients

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**Background and Goal of Study:** Sedation in the post-anaesthesia care unit (PACU) is specifically indicated for airway management and mechanical ventilation, postoperative anxiety and agitation, protection against myocardial ischaemia, and intracranial hypertension control (1). Spectral analysis of heart rate variability (HRV) and QT interval dispersion (QTD) are widely used for the assessment of cardiovascular autonomic control (2,3). The aim of this study was to evaluate the effects of remifentanil-propofol co-sedation on blood pressure (BP), heart rate (HR), QTD and HRV in neurosurgical patients.

**Materials and Methods:** 20 neurosurgical patients admitted to an intensive care unit were studied in a prospective, single-blind study. HRV was measured by spectral analysis in the frequency domain to calculate the low frequency component (LF), which reflects both the cardiac sympathetic and parasympathetic activity, the high frequency component (HF), which reflects the cardiac parasympathetic activity, the total power (TP), calculated by the addition of LF and HF, and the LF/HF ratio, which reflects the balance between the cardiac sympathetic and parasympathetic nervous activity. Patients receiving propofol at  $2.5 \text{ mg.kg}^{-1}.\text{h}^{-1}$  as sedation regimen were studied, and the parameters described above were monitored by a computerized ECG (12 leads) (NORAV Medical Ltd, Israel). Then, remifentanil was started at  $0.05 \text{ mcg.kg}^{-1}.\text{min}^{-1}$  and propofol infusion was reduced to  $1.5 \text{ mg.kg}^{-1}.\text{h}^{-1}$ . All parameters were evaluated after 20 min of this co-sedation regimen. Data were statistically calculated by ANOVA for repeated measures.  $P < 0.05$  was considered significant.

**Results and Discussion:** No significant changes in BP and HR during the study period were recorded. The remifentanil-propofol co-sedation regimen significantly decreased QTD in comparison with propofol alone (56 vs 69 ms;  $P < 0.05$ ). Furthermore, HRV was enhanced and LF/HF was higher after remifentanil-propofol infusion (1.7 vs 1.2). These results suggest that the remifentanil-propofol association may induce a better sympathovagal modulation, and improves the inhomogeneity of repolarization via a significant decrease in QTD.

**Conclusion(s):** In conclusion, HRV may assess the autonomic cardiac modulation and may provide useful information for analgo-sedation management in PACU.

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- 3 Nakamura T et al. *Chest.* 2004; 125(6): 2107-14.