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Abstracttitel: Sedation for outpatient transoesophageal echocardiogram: a novel approach using remifentanil plus low-dose midazolam.

Purpose: We hypothesized that the ultra-short acting opioid remifentanil combined with very low-dose midazolam would provide a better sedation and recovery profile compared to midazolam alone.

Methods: 41 consecutive outpatients scheduled for transoesophageal echocardiography (TOE) received either IV midazolam (group M, 2.5 mg bolus plus 1 mg increments repeated as needed, n=18) or a combination of a low-dose IV bolus of midazolam (0.5 mg) plus an infusion of remifentanil (group RM, 0.1 mcg/kg/min, reduced to 0.08 mcg/kg/min after probe insertion, n=23). We recorded BP, SpO₂, HR, time-to-discharge (modified Aldrete score of 13), duration of procedure, resource utilization, complications, ease of probe introduction, ease and quality of the procedure and patient's satisfaction with sedation with the Iowa satisfaction with Anesthesia Scale.

Results: Mean dose of midazolam in group M was 3.7 ± 1.3 mg. Median time-to-discharge was significantly reduced in the RM group compared with the M group (5 (5-10) vs. 30 (5-240) min, $p < 0.0001$), with 22 of the 23 group RM patients ready for "street discharge" within 5 minutes of removal of the TOE probe. Ease of probe insertion ($p = 0.001$), resource utilization ($p = 0.0001$), patient satisfaction ($p = 0.03$) and overall ease and quality of the procedure ($p = 0.0001$) were significantly better in the RM group than in the M group. No episodes of desaturation were observed.

Conclusions: This is the first report of the use of an ultra-short acting opioid, remifentanil, combined with a low-dose of midazolam, as a sedative technique for outpatient TOE. In this pilot study, remifentanil plus low dose midazolam provided better sedation than the current practice of higher bolus doses of midazolam alone. This novel approach is associated with improved tolerance of the procedure, faster recovery and minimal resource utilization. A randomized, controlled study is under way to verify our preliminary results.