

The effect of nitrous oxide on jugular bulb oxygen saturation during remifentanil plus target-controlled infusion propofol or sevoflurane in patients with brain tumors

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During propofol/fentanyl anesthesia, a large percentage of patients have jugular bulb oxygen saturation (S_{jO_2}) $<50\%$. The incidence is less with isoflurane/ N_2O . We evaluated the effect of N_2O on S_{jO_2} during remifentanil-based anesthesia with concurrent propofol or sevoflurane in 20 adults undergoing brain tumor surgery. Anesthesia was randomized: Group 1 ($n = 10$), target-controlled infusion propofol; and Group 2 ($n = 10$), thiopental 2-3 mg/kg followed by sevoflurane 0.9% end-tidal. Jugular bulb and arterial blood samples for gas analysis were withdrawn during the administration of oxygen 33% with nitrogen 67% and then with N_2O 67%. All samples were drawn before surgery and 20 min after the addition of the study gas and with an $ETCO_2$ 26-28 mm Hg and mean arterial pressure >90 mm Hg. Both groups had similar demographic and physiologic data. In the Propofol group, S_{jO_2} was $50\% \pm 10\%$ with nitrogen and $52\% \pm 9\%$ with N_2O (not significant); in the Sevoflurane group, however, N_2O 67% increased