peripherally mediated antinociception.² Another possible mechanism involved in decreasing propofol pain by dexmedetomidine might be venous α_1 - and α_2 -stimulation resulting in release of vasodilator prostaglandins that antagonize the venoconstrictor response. This modulates the sympathetic response of venous smooth muscle and may be important in endothelial dysfunction caused by propofol.³

In conclusion, dexmedetomidine decreases propofol injection pain as effectively as lidocaine, and can be an alternative to other pretreatment drugs.

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'Patients who sing need to be relaxed' - neuromuscular blockade as a solution for air-leaking during intermittent positive pressure ventilation using LMA

To the Editor:

Laryngeal mask airways (LMA) are used with intermittent positive pressure ventilation (IPPV).¹ We present a series of 12 patients where problems with IPPV occurred. Twelve patients (four women, eight men, mean age: 48 ± 14 yr, mean weight 80 ± 14 kg, ASA classification 1 and 2) underwent surgery under general anesthesia using a flexible LMA (FLMA; Laryngeal Mask Co. Ltd, St. Helier, Jersey, UK), size 4 for women, size 5 for men, blocked with 30 or 35 mL of air.

LMA insertion was facilitated by rocuronium $0.2 \text{ mg} \cdot \text{kg}^{-1}$ *iv*. Bispectral index monitoring (BIS; 2000 monitoring system, Aspect Medical Systems, Newton, MN, USA) was applied with a target of 40 to 55.

Neuromuscular monitoring consisted of phonomyographic monitoring at the corrugator supercilii muscle and adductor pollicis muscle. Intermittent positive pressure ventilation was set at $15 \cdot \text{min}^{-1}$, the tidal volume adjusted to PETCO_2 between 30 to 35 mmHg. During surgery, peak inspiratory pressures (PIP) were below 15 mmHg. In no patient was any initial leakage heard. Remifentanyl was infused at a rate between 0.1 and $0.25 \mu\text{g} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$, and sevoflurane was adjusted according to BIS.

After 55 ± 25 min of anesthesia these patients began to emit snoring or other high pitched sounds. Within ten minutes in all patients, the PIP exceeded 20 mmHg, tidal volumes decreased, and IPPV became difficult. Neuromuscular monitoring showed a train-of-four (TOF) ratio of more than 0.9 at the corrugator supercilii muscle, and no BIS value exceeded 58. Manual manipulation of the FLMA did not decrease the stridor. Intra-cuff pressures were below 80 mmHg in all patients; intermittent application of 1 mL of air into the cuff did not change the phenomenon. In all patients, a bolus of $1 \text{ mg} \cdot \text{kg}^{-1}$ *iv* propofol was administered and remifentanyl was increased to $0.5 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$ to increase depth of anesthesia ($\text{BIS} < 35$). The difficult IPPV situation (high PIP, low tidal volumes, air leakage) did not change. In accordance with the principle that neuromuscular blockade might change the geometry of the larynx and facilitate IPPV via the FLMA, rocuronium $0.15 \text{ mg} \cdot \text{kg}^{-1}$ *iv* was given. Within three minutes, 'singing' stopped in all subjects, tidal volumes and PIP returned to initial levels, and anesthesia continued without further disturbance.

We would recommend use of a small dose of neuromuscular blocking agent whenever patients start to 'sing' during IPPV via LMA to avoid ventilation problems.

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