

thrust) may be used with the first attempt or with repositioning especially when resistance is felt during insertion.<sup>3</sup>

A correctly placed LT will maintain its intended position after insertion. Use of the "bouncing sign" may optimize the LT insertion and the first attempt success rate. A study is required to corroborate the "preinflation" clinical bouncing sign with the "postinflation" fiberoptic view of the distal cuff position.

Adrian A. Matic MD  
Madison, Wisconsin

### References

- 1 Dorges V, Ocker H, Wenzel V, Schmucker P. The laryngeal tube: a new simple airway device. *Anesth Analg* 2000; 90: 1220–2.
- 2 Instruction for use. King LT Oropharyngeal Airway. King Systems Corporation, 2003.
- 3 Khan SA, Khan RM, Siddiqui MM. A better method of laryngeal tube insertion. *Anaesthesia* 2003; 58: 614–5.

### *Difficulty in airway management during sedation of patients affected by obstructive sleep apnea*

To the Editor:

Middle ear surgeons often prefer to perform functional surgery under local anesthesia to evaluate the surgical outcome promptly intraoperatively. Adequate sedation with a spontaneously breathing patient is mandatory to adequately stabilize the arterial blood pressure and to limit the patient's movements. The obstructive sleep apnea syndrome (OSAS) is a common disorder characterized by cessation of airflow for more than ten seconds despite continuing ventilatory effort, five or more times per hour of sleep, and is usually associated with a decrease of arterial oxygen saturation of more than 4%.<sup>1</sup> The main risk factor for OSAS is obesity, present in roughly 70% of patients with OSAS.<sup>1</sup> The condition is due to upper airway collapse<sup>2</sup> and can complicate interventions conducted under deep sedation.

During the last four years, more than 700 middle ear procedures were performed in our otorhinolaryngology clinic under local anesthesia associated with sedation in spontaneously breathing patients. Intravenous administration of midazolam 0.03 to 0.04 mg·kg<sup>-1</sup> plus fentanyl 1.4 to 1.5 µg·kg<sup>-1</sup> was used for patient sedation. In eight of these patients (1.14%

of the entire patient population; five males/three females; mean age 54 ± 12 yr) a temporary interruption of the surgical procedure was required because of difficulties in maintaining upper airway patency, and the intervention was carried out under general anesthesia. On further questioning, all eight patients presented a history of snoring and excessive daytime sleepiness, suggestive of OSAS. On overnight polysomnography, all patients presented criteria for severe OSAS, as classified in other studies<sup>3</sup> [mean (range) apnea-hypopnea index – (AHI): 48; 35–70].

Our observation seems to confirm that, in patients with OSAS, caution is required when administering hypnotic drugs because excessive sedation can increase the risk of upper airway obstruction.<sup>4</sup> This may be due to the benzodiazepine-induced muscle relaxation and subsequent pharyngeal collapse.<sup>5</sup> Further, airway obstruction may be enhanced by patient positioning for middle ear surgery, the patient lying supine with his/her head strongly rotated laterally and the body usually in the Trendelenburg position. In addition, all central depressant drugs can also depress the ventilatory response to the ensuing hypoxemia and hypercapnia.<sup>1</sup>

We strongly suggest that anesthesiologists carefully investigate patients preoperatively for symptoms and signs of OSAS, specially when sedation with a spontaneously breathing patient is needed for functional middle ear surgery. In our opinion, OSAS represents a relative contraindication to local anesthesia and sedation for such procedures.

Felice Agrò MD  
Fabrizio Salvinelli MD  
Manuele Casale MD  
Stefano Gherardi MD  
Rome, Italy

### References

- 1 Benumof JL. Obstructive sleep apnea in the adult obese patient: implications for airway management. *Anesthesiol Clin North America* 2002; 20: 789–811.
- 2 Malhotra A, White DP. Obstructive sleep apnoea. *Lancet* 2002; 360: 237–45.
- 3 Young T, Peppard P, Palta M, et al. Population-based study of sleep-disordered breathing as a risk factor for hypertension. *Arch Intern Med* 1997; 157: 1746–52.
- 4 Eastwood PR, Szollosi I, Platt PR, Hillman DR. Comparison of upper airway collapse during general anaesthesia and sleep. *Lancet* 2002; 359: 1207–9.
- 5 Montravers P, Dureuil B, Desmonts JM. Effects of i.v. midazolam on upper airway resistance. *Br J Anaesth* 1992; 68: 27–31.