

hyperalgesia. Furthermore, they suggested that remifentanyl in association with ketamine was useful in patients pretreated with opioids.

One possibility for this patient's pain in the postoperative period – and in our view the most likely one – however is not discussed, namely opioid-withdrawal hyperalgesia. Postoperative analgesia in patients who receive opioids for chronic pain is undoubtedly a challenge for anaesthesiologists and pain therapists. In clinical practice, chronic pain patients receiving strong opioids preoperatively show high inter-individual variability and sometimes extremely high postoperative demand for opioids. Depending on the chronic opioid dose, total cumulative doses of 30–45 mg piritramide within the first 1–2 h are common in these patients. These observations are in accordance with Rapp and colleagues [2], who found a more than three-fold (135.8 vs. 42.8 mg) increase in opioid demand in the first 24 h after surgery in patients with preoperative opioid consumption as compared with opioid-naïve patients.

In addition, we feel that postoperative analgesia is much more difficult to handle in chronic pain patients receiving remifentanyl as sole opioid intraoperatively as compared with those receiving long-acting μ -opioid agonists like fentanyl or sufentanyl. Irrespective of the fact whether this patient's fentanyl patch was removed before surgery or not, we feel that the administration of 10 mg piritramide and 4 mg morphine for postoperative analgesia in this patient was simply not enough to provide sufficient analgesia.

It has been shown that enhanced pain sensations after cessation of a remifentanyl infusion are due to an acute withdrawal response, which cannot be modulated by *N*-methyl-D-aspartic acid receptor antagonists [3,4]. Therefore, we think that the therapeutic effect of ketamine observed by Dumont and colleagues is most likely due to its direct analgesic or hypnotic effect and not based on the reversal of pronociceptive mechanisms induced by remifentanyl. The increasing evidence for opioid-induced hyperalgesia should not lead to a restricted use of opioids in the perioperative period, especially not in patients who have a history of chronic opioid administration.

A. Z. Tzabazis, W. Koppert
Anästhesiologische Klinik
Universitätsklinikum Erlangen
Germany

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Comparison of LMA Unique, Ambu laryngeal mask and Soft Seal laryngeal mask during routine surgical procedures

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EDITOR:

We read with interest the paper by Francksen and colleagues [1] comparing the LMA Unique, Ambu laryngeal mask and Soft Seal laryngeal mask. In a randomized controlled study, we compared the

performance of the LMA Unique with the Soft Seal laryngeal mask and the Cobra Perilaryngeal Airway [2]. We studied 320 consecutive patients in the three groups and found that the LMA Unique and Soft Seal laryngeal mask were of equal clinical performance. Ease of insertion between the two devices was very similar using a partially inflated cuff. In the Unique LMA group, a successful primary airway was established in 96% of patients on the first attempt, and in 4% of patients insertion failed at the second attempt. In the Soft Seal

Correspondence to: Baha Al-Shaikh, Department of Anaesthesia, William Harvey Hospital, Kennington Road, Ashford, Kent TN24 0LZ Ashford, UK. E-mail: ba_shaikh@yahoo.com; Tel: +1233 633331, ext 86041

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laryngeal mask group, a successful primary airway was established in 99% of patients on the first attempt, and in 1% of patients insertion failed at the second attempt. In agreement with the authors, the effective airway time was similar for the two devices and the oropharyngeal leak pressure was higher in the Soft Seal laryngeal mask group. The endoscopic score of the larynx was significantly better with the Soft Seal laryngeal mask group than with the Unique LMA group. The changes in cuff pressures and airway morbidity were similar in both groups.

In an observational study, we inserted the Soft Seal laryngeal mask with the cuff inflated at atmospheric pressure [3] in 100 patients and achieved 97% success in the first attempt and 3% in the second attempt. Regarding insertions, 85% were graded as very easy and 12% as easy and were achieved within 20 s. The mean intra-cuff pressure *in vivo* was 40 mmHg (53 cm H₂O). The leak pressure was at a mean pressure of 24.8 cm H₂O, in agreement with the authors. Only six patients complained of mild-to-moderate sore throat in the first 2 h after operation.

We agree with the authors' conclusion that the LMA Unique and the Soft Seal laryngeal mask are of equal clinical suitability. We believe that inserting the Soft Seal laryngeal mask with the cuff inflated at

atmospheric pressure can achieve excellent conditions for insertion and removal.

B. Al-Shaikh, V. Dixit
Department of Anaesthesia
William Harvey Hospital
Ashford
Kent, UK

A. van Zundert
Department of Anesthesiology
Catharina Hospital
The Netherlands

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Conditions involving release of pro-inflammatory cytokines predispose to ARDS

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EDITOR:

Sadis and colleagues [1] investigated risk factors for the development of ARDS in patients receiving multiple transfusions and found that it was not the number of transfusions but thoracic trauma and hypoxia that were associated with the subsequent development of ARDS. Patients who developed ARDS received significantly more fresh frozen plasma. Previous studies showed that septicaemia is an additional predisposing factor for transfusion-related ARDS [2]. Another condition commonly

associated with pulmonary oedema during infusion of large amounts of intravenous fluids is diabetic ketoacidosis [3]. All these conditions with their different pathophysiology have in common the release of large amounts of cytokines including tumour necrosis factor (TNF) and interleukin-1 (IL-1). Transfusion of an anti-CD28 monoclonal antibody into human volunteers stimulated T-cells to release large amounts of these two cytokines and led to pulmonary oedema in all subjects of this trial [4]. The mechanism by which these cytokines lead to or predispose to pulmonary oedema has recently been clarified: Alveolar epithelial fluid clearance in pulmonary oedema is dependent on pulmonary epithelial sodium and chloride transport through the apical alveolar epithelial sodium channel and the cystic fibrosis transmembrane conductance

Correspondence to: Michael Eisenhut, Luton and Dunstable Hospital NHS Foundation Trust, Luton, Bedfordshire, LU4 0DZ, UK. E-mail: michael_eisenhut@yahoo.com; Tel: +0845 1270127; Fax: +1582 497280

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