Sore throat and hoarseness after total intravenous anaesthesia

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Background. Sore throat and hoarseness are common complications, but these have not been studied after total i.v. anaesthesia.

Methods. We prospectively studied 418 surgical patients, aged 15–92 yr, after total i.v. anaesthesia with propofol, fentanyl and ketamine to assess possible factors associated with sore throat and hoarseness.

Result. We found sore throat in 50% and hoarseness in 55% of patients immediately after surgery. This decreased to 25% for sore throat and 24% for hoarseness on the day after surgery. Both sore throat and hoarseness were more common in females and when lidocaine spray had been used. Cricoid pressure during laryngoscopy was inversely associated with the risk of sore throat.

Conclusion. Knowledge of these factors may reduce postoperative throat complications, and improve patient satisfaction.

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Variables considered significant by logistic regression analysis are shown in Table 1. Both sore throat and hoarseness immediately after surgery were more common in females. Application of lidocaine spray also predicted both sore throat and hoarseness after surgery. Cricoid pressure reduced the risk of hoarseness immediately after surgery.

### Discussion

Previous studies when nitrous oxide was used reported sore throat in 14–50% of patients and hoarseness in 22–50%. We found sore throat and hoarseness in patients undergoing total i.v. anaesthesia in 50 and 55% of patients, respectively, which is similar to or greater than the incidences reported in studies of nitrous oxide anaesthesia.

An explanation for this high incidence of sore throat and hoarseness may be that i.v. techniques require careful titration of drugs to maintain adequate depth of anaesthesia. Bispectral index monitoring or target-controlled infusion help to provide adequate sedation, but these methods were not always available. Inadequate relaxation or movement may have occurred more frequently in our patients than in the patients in the previous studies who received volatile anaesthesia and nitrous oxide. This could increase sore throat and hoarseness. Although approximately one-half of patients who complained of sore throat and hoarseness recovered spontaneously within 24 h after extubation, sore throat and hoarseness were both still common problems immediately after total i.v. anaesthesia.

Application of lidocaine spray was strongly associated with postoperative sore throat and hoarseness. Lidocaine spray is widely used before intubation; however, its effect on postoperative sore throat and hoarseness is unclear. The lidocaine spray we used contains ethanol and l-menthol as additives. These additives may be the cause of higher incidence of sore throat and hoarseness seen in our study.

Consistent with previous reports, female sex was a strong predictor of postoperative sore throat and hoarseness; females may have been intubated with a relatively tightly fitting tube, which could increase sore throat and hoarseness, as a previous study indicated.

Application of cricoid pressure during laryngoscopy reduces hoarseness immediately after surgery. We often find that application of cricoid pressure facilitates visualization of the vocal cords during laryngoscopy. This manoeuvre helps to avoid damage around the vocal cords caused by forcible intubation, which could lower the incidence of hoarseness.

One limitation of our study is the time of the first evaluation of sore throat and hoarseness. Although we excluded inappropriate candidates with the modified RSS, some patients may not have been able to respond accurately to specific questions about sore throat and hoarseness.

In conclusion, sore throat and hoarseness are common after total i.v. anaesthesia. They are more common in females and after lidocaine spray. Application of cricoid

### Results

Fourteen patients were excluded because of agitation or inappropriate sedation immediately after surgery. Therefore 404 surgical patients, mean age 58 (range 15–92) yr were enrolled. Fifty-seven percent of patients were female and 43% were male. The mean duration of intubation was 163 (SD 76) min. In the 404 patients, lidocaine spray was used in 54% (217/404) and cricoid pressure was applied in 22% (89/404). Sore throat and hoarseness immediately after surgery were reported by 50% and 55% of patients, respectively. This decreased to 25% and 24%, respectively, on the day after surgery.
pressure reduced the risk of sore throat immediately after surgery. Knowing the factors that can cause or reduce postoperative sore throat and hoarseness after i.v. anaesthesia may reduce unnecessary complications and improve patient comfort and satisfaction.

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