

Sir,
Is suction of CO₂-enriched air under the drape during cataract surgery necessary

I would like to congratulate doctors Inan *et al*¹ on yet another well-conducted study into the extensively documented problem of Carbon dioxide (CO₂) retention under surgical drapes.² Their technique appears to be efficacious; however, the clinical need for such a system for cataract patients is questionable. In the recent surveys conducted by the Royal College of Ophthalmology, it was noted that there had been a drop in the rate of sedation for cataract surgery under local anaesthetic block from 45% in 1991 to 8% in 1996. This rate has probably reduced further since Katz demonstrated an improved safety record for unsedated patients.^{3,4} Where sedation with midazolam is required, a dose of 0.02 mg/kg or 1–1.5 mg is generally effective for the average cataract patient compared with the 3 mg used in the present study. In elderly patients, 3 mg may lead to hypoventilation, CO₂ retention and reduced cerebral responsiveness to CO₂.⁵ This may also explain the reduced oxygen saturations observed even in the treatment group.

The time for which the patients are kept under the surgical drapes was alluded to in the study. Periods greater than 60 min resulted in exclusion. The average draping time for surgery in both arms of the study was prolonged, the average time in our institution being approximately 10 min. In the study by Schlager into CO₂ retention, the time averaged about 20 min.⁶ The longer a patient remains below the drapes, the greater the likelihood of CO₂ retention and the resultant adverse physiological effects.

It has been demonstrated that a flow of between 5–10 l/min oxygen below surgical drapes will prevent rebreathing without any special equipment.⁷ In conclusion, in answer to the question posed by the authors, there is probably no clinical need for any aspiration system for cataract patients performed under local anaesthetic block provided excessive sedation and prolonged draping time are avoided and adequate flows of oxygen are maintained. The system may, however have a place in other forms of prolonged head and neck surgery under local anaesthetic with sedation.

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Sir,
Reply

First of all, we would like to express our appreciation for Dr Fry's valuable comments.

Safety doses of midazolam are between 0.01 and 0.1 mg/kg.¹ A total of 1–1.5 mg doses may be more suitable in senile cataract patients as noticed by Fry. In our study, a single dose of 3 mg midazolam was given 15 min before operation also utilizing the premedication effect, and another agent was not given during the entire course. The dose was given under monitoring and no sign of hypoventilation was observed until draping. Therefore, we did not think that hypoventilation observed after draping was related to the dose of midazolam used. Additionally, the patients may overcome the stage of local block more comfortably in the dose used. Fry states that there had been a drop in the rate of sedation for cataract surgery in recent years. A dichotomy between North American practice, in which i.v. sedation appears to be used routinely, and northern European practice, in which sedation is used less frequently, has been reported.² The choice of sedation may change according to trends and regions. Nowadays, use of topical anaesthesia in cataract surgery is being increased and the routine use of sedation is being abandoned at our clinic.

In our study, a significant reduction in oxygen saturation was not observed in the treatment group. We agree that the draping duration was longer than an average time especially for phaco surgeons. The cases of transition to phacoemulsification had been included in the study. The duration of draping may be an example of several conditions such as resident cases, hard or complicated cases, etc. The study may also be a guide to other ophthalmic surgeries such as cataract surgery combined with glaucoma surgery, vitreoretinal surgery, etc. It has been shown that carbon dioxide concentration under the drape 15 min after covering reached 3.5% in unsedated subjects.³ This means that even in shorter-time cataract surgery, CO₂ retention under surgical drape is quite possible. Without suction system, 5–10 l O₂, which can cause drying in mucous membranes and air insufflation may disturb the patients, may be preferred, but with suction system high O₂ flow is not needed and CO₂ is removed off from the environment.^{4–6} As seen in previous studies, not even fresh gas flows up to 10 l/min prevented the accumulation of CO₂ under the drapes. The rate of CO₂ in expired air, and thus CO₂ rate in inspired air is reduced.^{3,7} Suction system is a simple equipment, easy to handle and does not necessitate so much effort. Suction of surrounding air combined with low-dose oxygen supply seems to be an adequate means of preventing CO₂ retention.^{3–6} The suction system will be especially helpful in patients with pre-existing severe cardiovascular and pulmonary disorders that were not included in our study or in patients having prolonged draping duration.

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Sir,
What patients recall of the preoperative discussion before cataract surgery: results of a questionnaire survey

Ophthalmologists have an ethical and legal obligation to give a fully informed consent so that the patients can make an intelligent decision prior to cataract surgery.¹ Serious errors in patient's understanding and recollecting the information given pre-operatively can lead to medical malpractice litigations.² This prospective study was undertaken to determine the percentage of preoperative information, about cataract and cataract surgery-related complications surgery, retained on the day of surgery.

In all, 82 patients undergoing elective phacoemulsification with intraocular lens implantation were included in this study. At 2 weeks prior to the operation, each patient received a standardised written and verbal explanation about cataract surgery and the possible complications. There were 55 patient's undergoing surgery for the first eye and 27 for the second eye. A study questionnaire was designed to check patient's recall of preoperative information provided on the day of surgery. A trained nurse read out the questionnaire for patient's who had difficulty reading it. Questions, phrasing, and intonation were standardised to avoid any bias. Also, all the questions included a 'don't know' option.

In all, 92.3% of patients found the combined information provided by the nurse on pre-operative assessment visit, and through the booklet to be useful. The mean accuracy of correct information recalled was 38.9% in the first eye surgery and even lower in second eye group at 32.9%. This was surprising as the second group of patients not only had heard the consent before but also had undergone both the preoperative process and the postoperative course. Patient's recall of information relating to the complications (including