TABLE Preanaesthetic medications in patients who did and did not suffer respiratory failure after kidney transplantation

Drug	*Patients without respiratory failure (n = 57)*	*Patients with respiratory failure (n = 8)*
Diazepam	20	0
Midazolam	5	0
Lorazepam	2	1
Phenergan	3	1

negative pressure-type oedema due to respiratory depression or muscle weakness. Further, a thorough retrospective analysis of the course of the 211 patients should include data on all possible causes of respiratory failure, such as narcotics. Without this information, the conclusion that diazepam caused respiratory depression is only speculative. Another possible explanation for respiratory depression in this clinical setting is that it may result from a combination of drugs, for example, diazepam plus cyclosporine. Finally, it is not surprising that effects of operation and neuromuscular blockade differ between patients who received halothane and those who received isoflurane.[1] Isoflurane, compared with halothane followed by vecuronium, has been shown clinically to augment neuromuscular blockade.[2]

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Time-cycled inverse ratio ventilation

To the Editor:

After reading with interest the article by Drs. Tweed and Lee[1] on time-cycled inverse ratio ventilation (TC-IRV) during anaesthesia, we would like to emphasize several points which require clarification.

Our group uses IRV in a time-cycled volume-controlled mode with a constant inspiratory flow adjusted to deliver and end-inspiratory plateau of about 0.5 sec for several years.[2,3] Tweed and Lee have used the term time-cycled IRV to distinguish this mode from pressure-controlled IRV (PC-IRV). However, PC-IRV as introduced by Lachmann *et al.*[4] is also a time-cycled form of ventilation because inspiratory and expiratory time are preset at the ventilator (by respiratory rate and inspiratory/expiratory (I/E) - ratio) and are not influenced by lung mechanics. In PC-IRV the inspiratory airway pressure is adjusted at the ventilator allowing tidal volume to vary according to changes of lung mechanics. This is the only difference to volume-controlled IRV (VC-IRV) where tidal volume is constant and airway pressure follows the changes in lung impedance.

Several reports have stressed the importance of air trapping and occult PEEP ("auto PEEP," "intrinsic PEEP") mechanisms due to a short expiratory time.[3,5,6] This gain in end-expiratory lung volume is basically governed by the ratio of expiratory time (Te) to the time constant of the lungs (tau). In the study of Tweed and Lee the shortest expiratory time (respiratory rate = $10 \cdot min^{-1}$, Te = 23%) of 1.4 sec was far above the time constant calculated from the measured compliance and expiratory resistance ($0.05 \times 11 = 0.55$ sec). Although the authors did not estimate the intrinsic PEEP by an expiratory clamping manoeuvre and did not look for the presence of any end-expiratory flow we agree that according to the lung function of the studied patients there should be only a negligible intrinsic PEEP under the investigated conditions.

As the improvement in oxygen transfer is attributed to the presence of considerable intrinsic PEEP,[3,6] it is not surprising that Tweed and Lee could not see any changes in this aspect. Using higher respiratory rates ($15–20 \cdot min^{-1}$), as we do frequently in intensive care patients, a similar designed investigation would probably result in a more optimistic view of IRV during anesthesia.

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REPLY

We thank Christian Putensen et al. for their comments. They point out that both TC-IRV (the mode we studied) and PC-IRV are time-cycled but differ in control of tidal volume. Perhaps our mode should be called TC-VC-IRV without "intrinsic" PEEP to be more specific.

Shortening expiratory time to the point where gas trapping and "intrinsic" PEEP occur will alter both resting lung volume and pulmonary perfusion. This is quite different from our model, in which we attempted to examine the effects of prolonged inspiration and an increase in mean airway pressure without PEEP.

We wonder whether PEEP, produced by shortening expiration, is not essentially the same as standard PEEP.

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Prevention of iv catheter damage

To the Editor:

Drs. Dull, Forbes and Tinker[1] reported that puncturing the skin with an 18-gauge needle prior to placement of the 22- and 24-gauge over-the-needle catheters was not efficacious in preventing catheter damage during insertion.

We recently published a study comparing intravenous cannulae available in New Zealand, involving 11 different brands:[2] 40 of each available brand of 16 and 22 intravenous cannula were evaluated. Following clinical use, the 22-gauge cannulae were carefully removed and were assessed microscopically for distortion. Of the six 22-gauge brands (Insyte®, Nipro®, Angiocath®, Surflo®, Venflon 2® and Jelco®) examined, catheter tip distortion varied from no distortion for the Insyte® to 53.8% distortion of all grades, for the Jelco® cannulae. The Jelco® cannula was found to have a higher incidence of catheter tip distortion of those brands examined ($P < 0.001$).

Dull *et al.* mentioned in their discussion several limitations of their study, including that only the Jelco® brand of cannula was examined. They discounted that there may be possible differences among different brands because "modern catheter/stylet units are very similar" and "this possibility seems unlikely." We wish to disagree with this assumption. This is despite some differences in the two studies. First the number of cannulae examined in our study was less, 40 compared with 100 by Dull *et al.* Secondly, the incidence of Jelco® catheter tip distortion in our study was 53.8%, which was considerably higher than Dull *et al*'s 8.0%. Although this discrepancy maybe due to a difference in examination of catheter damage, we feel the methods are comparable. Our study demonstrated a difference in catheter tip distortion among the nine modern available 22-gauge intravenous cannulae available in New Zealand.

Nevertheless, Dull *et al.* chose the most appropriate brand of intravenous cannula, the Jelco® cannula, to assess for catheter damage, as it would have been the most likely catheter to show such damage based on our findings.

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Bilateral interpleural block

To the Editor:

We read with interest the report of Ben-David and Lee on the use of bilateral interpleural block for midline upper abdominal surgery.[1] Although there are several approaches to the management of these cases, we consider that a simpler technique would be equally effective and probably safer. We use a combination of light general anaesthesia with a continuous epidural block for such cases. A mixture of bupivacaine and fentanyl provides excellent analgesia, muscle relaxation and stress-free anaesthesia perioperatively and postoperatively with minimal side-effects.[2]

We consider that general anaesthesia and interpleural bilateral block is "too much" for one patient. Undoubtedly the quality of analgesia is not comparable to that obtained from an epidural block.[3] The rate of complications with two interpleural blocks is greater than one epidural block. Needless to say the price of two interpleural catheters in