## *Erroneous connection of the fresh gas flow to the anesthesia circuit*

To the Editor:
We would like to bring to your attention a critical incident which occurred with the 1998 model Datex AS/3 anesthetic delivery unit (Datex-Ohmeda Inc., Madison, WI, USA) in the obstetrical suite at our hospital. During an emergency Cesarean section for severe fetal distress with a possible abruptio placentae and a failed epidural anesthetic, a general anesthetic was commenced after ascertaining that the oxygen flow was at 6 $L \cdot min^{-1}$ and positive pressure could be obtained in the patient circuit using a machine which had been checked previously.

After induction of anesthesia the patient became immediately cyanotic and ventilation was not possible in the manual mode. Measures taken included removal of the endotracheal tube, mask ventilation with oxygen supplied from a separate flowmeter, reintubation and ventilation with the manual resuscitation bag with return of 100% oxygen saturation. Anesthesia was maintained with intermittent injections of *iv* propofol. At this point it was noted that the fresh gas flow tubing was disconnected and the ventilator hose was connected to the fresh gas flow outlet on the anesthetic machine. The hoses were then reconnected correctly and the anesthetic was conducted in the usual manner with a good outcome for the mother and infant.

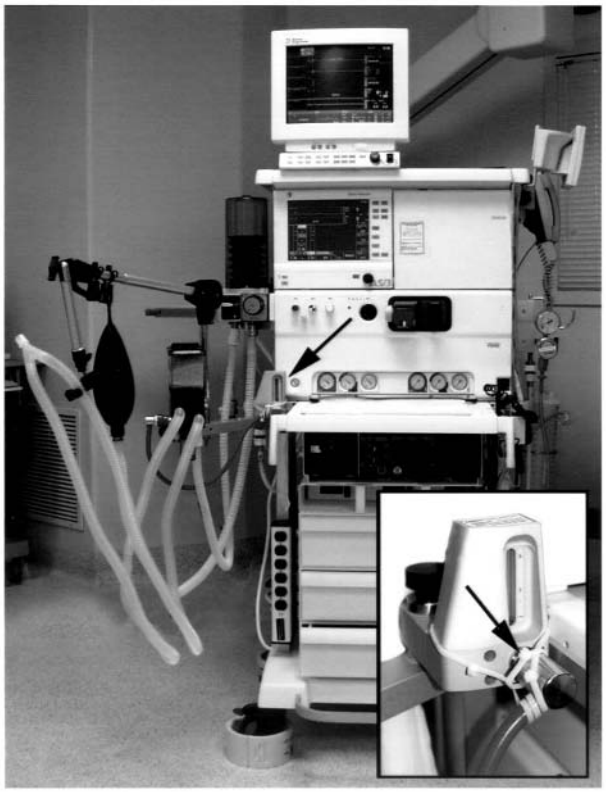

FIGURE Depicts the securance of the fresh gas flow hose to the fresh gas outlet of the Datex gas machine to prevent the erroneous connection that was present in this obstetrical case.

Subsequent simulation of the wrong connections demonstrated that the breathing bag would pressurize but there was no flow of oxygen in the patient circuit and the breathing bag did not deflate. Following this event the fresh gas flow hose and outlet have been fastened securely as shown in the Figure. This procedure has been carried out on every AS/3 machine in our institution.

Much has been written about the anesthetic machine and patient safety[1,2] from anesthetic machine malfunction[3] and faulty connections[4] to human error.[5] Yet, this continues to be a problem. This event demonstrates the importance in an emergency situation of detecting fresh gas flow from the circuit itself prior to induction of anesthesia in every make of anesthetic machine.

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## *Dopamine for renal protection*

To the Editor:
We have read the comments of Bracco and Parlow[1] on the meta-analysis of Kellum and Decker[2] with interest. They have reviewed a seemingly important meta-analysis and provided interesting additional viewpoints on an important topic. Unfortunately, the paper by Kellum and Decker is a problematic basis for such

detailed analyses. As we have shown in a letter to Critical Care Medicine,[3] the meta-analysis of Kellum and Decker has minor flaws in data selection and presentation and several major flaws in data analysis that make its results questionable. There was no attempt by Kellum and Decker to reject our criticism, so we can assume that most of our points are valid.

The abstract of Kellum and Decker's publication in the Canadian Journal of Anesthesia contains a table with the main outcome data, which states that "values have been re-calculated", although it is unclear why, how and by whom. This re-calculation includes two wrong numbers. For one, the risk of death is 12/258 = 4.65% in the dopamine group and 14/250 = 5.60% in the placebo group, giving a relative risk ratio of 0.83, not 0.86. Secondly, the risk for onset of renal failure is 38/253 = 15.0% with dopamine and 59/270 = 21.9% with placebo, resulting in a relative risk of 0.69, not 0.72.

Finally, although the re-calculated risk ratios are not significant at the usual 0.05 level, it should be mentioned that the trend for reduction of acute renal failure with dopamine is quite strong, with $P < 0.06$ in Fisher's exact test. Consequently, we think that Bracco's conclusion that "there are no data from prospective, well-controlled, randomized clinical trials that support the use of dopamine in critically ill patients..." is premature. Rather, we would conclude with Parlow that a "further large-scale investigation into effective means of prevention is warranted".

This should include a state-of-the-art meta-analysis that replaces the values of Kellum and Decker with reliable (and updated) data. Such a meta-analysis should preferably be conducted by a group who is not biased by its own prior publications on dopamine. Alternatively, it could be a joint effort of scientists who have published pro and contra dopamine in the past.

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## References

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2 *Kellum JA, Decker JM.* Use of dopamine in acute renal failure: a meta-analysis. Crit Care Med 2001; 29: 1526–31.
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## *Reply*

*I thank Dr. Maleck and his colleagues for their interest in the summary[1] on the meta-analysis of Kellum and Decker.[2] As the editor for the Best Evidence in Anesthetic Practice, my policy is to recalculate the effect estimates of a featured study if sufficient data has been published. This policy is consistent with that of secondary journals such as the ACP Journal Club.*

*Kellum and Decker identified 24 studies that reported at least one of their outcomes of interest; 18 were randomized controlled trials. The authors state that, "because a sufficient number of randomized trials were identified, the remainder of the analysis was restricted to these studies."[2] Cumulative risk ratios (RR) were calculated using the Mantel-Haenszel fixed effects model. The recalculated values featured in Best Evidence[1] are based on data published in Table II of the original report[2] using the same model and Meta-Analyst version 0.988 (© Joseph Lau, Boston, MA, USA). The RR of 0.83 and 0.69 for death and onset of renal failure suggested by Maleck et al. appear to be based on an equal effects model, which assumes identical within-study and between-study variances for all pooled studies.[3] This is analogous to assuming that all the results are from one single study. Such an assumption is not valid for this meta-analysis.*

*Like all other types of studies, the validity of a systematic review can be threatened by various confounders and biases. However, Kellum and Decker's meta-analysis provided the most up-to-date summary of the relevant literature at the time of its publication. Two recent studies have reported similar results.[4,5] An updated meta-analysis would be welcomed and eagerly appraised.*

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