

Vital Signs' final opinion that this occurrence resulted most probably from a foreign body between the mold faces, which caused significant flashing and occlusion.

In summary, it is virtually impossible to prevent this type of problem completely. However, to prevent such an occurrence from producing patient harm in the future, we recommend that 1) all anesthesiologists and department members continue to follow the NIOSH criteria for leak-test procedures of low-pressure components before the start of each case and 2) at least one complete extra set of breathing circuit equipment be maintained as insurance against discovered defects or the failure of equipment during cases in progress.

Finally, I would like to thank Vital Signs, Inc., Ms.

Mert Kincaid, CRNA, and Linda Cocuzzi for their help in isolating this problem.

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Use of a Garbage Bag for Patient Transfer

To the Editor:—We read the letter by Drummond and Sager¹ with great interest. Our way of using a garbage bag almost is identical except for one critical point. We cut the bottom part of the bag off so that it now can move like the caterpillar tread of a tank while the patient is being transferred. This is much smoother than sliding the patient on the bag.

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Hypotension May Have Profound Effect on the Liver

To the Editor:—In their article, "Profound Arterial Hypotension in Dogs: Brain Electrical Activity and Organ Integrity," Dong *et al.*, underscore the need for a means of monitoring liver function during deliberate hypotension.¹ The authors ask why liver damage occurs before brain damage under their experimental conditions. If organ damage is a function of reduced blood flow and hence oxygen delivery, the brain seems to be remarkably resilient in maintaining flow, even at perfusion pressures below the lower threshold of autoregulation. During aneurysm clipping in humans, surgery usually is carried out in a head-up position; if the aneurysm ruptures during clipping, the pressure often is reduced deliberately to low values to facilitate hemostasis. Neuroanesthetists are aware that, in spite of position,

low arterial pressure, and ipsilateral common carotid artery compression, a surprising amount of arterial blood still enters the surgical field. One wonders what the concomitant changes in liver blood flow are under such circumstances.

The portal venous system does not display any significant autoregulation; autoregulation in the hepatic circulation is minimal and controversial.² At inspired halothane concentrations of 1% we found little baroreceptor homeostasis with respect to celiac blood flow in the dog.³ In the study of Dong *et al.*, inspired halothane concentrations were about 30% higher than this and probably ablated any residual hepatic artery blood flow homeostasis. Of the end-organs giving reason for concern during deliberate hypotension, namely the

liver, kidney, brain, lungs, and heart, only the liver lacks any reasonable means of intraoperative monitoring. The development of such monitoring would be a valuable tool for those anesthesiologists using deliberate hypotension, particularly where other physiologic variables, such as PaO_2 and PaCO_2 may be abnormal.⁴

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