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REPLY

Dr. Hardy states that we cannot predict with certainty which patient is specifically at risk of regurgitation and aspiration of gastric contents. We agree with this statement. We also agree that the occasional patient vomits incompletely digested food after an eight-hour fast. That is why we specify "no solid food should be ingested on the day of surgery."

Our recommendations for preoperative oral fluids apply to healthy patients scheduled for elective surgery, and they are based on current physiological knowledge and available data. In the past, we have had, as does Dr. Hardy, difficulty in accepting the idea of unrestricted ingestion of clear liquids until three hours before the scheduled time of surgery. Our opinion has now changed, based on recent publications which we quoted. We believe there is no evidence that an increased fast will reduce the risk of aspiration pneumonia, should regurgitation and aspiration of gastric contents occur. We are not suggesting that our recommendations will eliminate the risk of regurgitation and aspiration of gastric contents – we are stating that a fluid fast beyond two hours is of no measurable benefit in increasing the pH or reducing the volume of gastric content.

Hardy advocates "limiting fluids to sensible quantities and specifying which ones may be safely ingested." We specify clear fluids – tea, coffee, fruit juice, water – but what is a "sensible quantity"? Since instituting the recommended guidelines, experience in our hospitals is that each patient drinks what he or she feels is a comfortable amount. They do not compete to see who can drink the most. Follow-up studies in ambulatory patients¹ and inpatients² show that the ingested volume in adults is usually 100–400 ml and that there is no correlation between volume ingested and residual gastric fluid volume at induction of anaesthesia.

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Optimizing the yield from central venous punctures

To the Editor:

Our practice is limited to cardiac anaesthesia where we do not have free access to the patients' arms during surgery. More and more frequently we are presented with patients at high risk of massive haemorrhage or who are likely to require multiple infusions of drugs during the operative procedure. Easily accessible and large-bore central venous lines must be established to face these situations.

We have found a way of obtaining up to seven central lines (two large-bore lines, one #16 Fr, and four #18 Fr lines) by using only two puncture sites. We insert two #8.5 Fr introducers (Arrow®, Arrow International Inc., PA) in two separate central veins (internal jugular and/or sub-clavian). Through one introducer we pass a five-port pulmonary artery catheter (PAC) and through the other a three-port central venous catheter (Arrow®–Howes®, Arrow International Inc., PA) (Figure).

The two introducer lines and the #16 Fr line on the three-port central catheter provide large-bore entries through which massive fluid resuscitation can be accomplished. Also, four other ports are available for the simultaneous infusion of cardiovascular drugs and/or

FIGURE

more fluids, provided only the distal port of the PAC is used for continuous monitoring.

It occurred to us that this approach might be useful to anaesthetists managing patients at risk of massive haemorrhage or requiring multiple drug infusions.

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Complications with guide wires for central vein cannulation

To the Editor:

We would like to report two further cases that involved complications when using guide wires for central vein cannulation.

The first case involved a three-year-old girl, scheduled for repair of Tetralogy of Fallot.

Following induction of anaesthesia, with the patient paralysed and in a 15° head-down tilt, with the head turned to the left, right internal jugular venous cannulation was undertaken under strict aseptic conditions. Using a Cook double lumen #5 French 5 cm catheter system, the vein was located easily with the introducer needle, the guide wire was threaded, the dilator used and the catheter guided over the wire into the vein. The guide wire did not come away easily, but with increasing traction it suddenly became free and was pulled back. Almost at once there was sudden hypotension and arterial desaturation. The wire and catheter were removed *en bloc* and CPR was instituted. Urgent thoracotomy was performed with rapid establishment of extracorporeal circulation. When the chest was opened there was blood in the mediastinum and the right pleural space, and there was haematoma formation in the region of the right subclavian vein, but no obvious laceration or puncture of the vein was seen. Inspection of the removed guide wire showed it to be intact and undamaged.

The second case was a four-year-old girl admitted for repair of a primary atrial septal defect and mitral insufficiency.

Following induction of anaesthesia, the right jugular vein was cannulated using a #5 5F, 5 cm double-lumen Cook catheter system. Again, there was difficulty in

FIGURE

removing the guide wire but this was eventually achieved, and on inspection the coiled helix was seen to have become unwound (see Figure). Another double-lumen catheter was inserted following needling, guide wire insertion and dilation.

These two cases illustrate some of the hazards associated with central vein cannulation using a guide wire. The structure of guide wires used for vascular access consists of:

- (a) a coiled helix of stainless steel wire surrounding
- (b) a mandrel, or central core wire commonly fixed to the helix at one end and terminating about 3 cm from the other end;
- (c) a safety wire in the form of a small straight wire running parallel to the mandrel which is attached to both ends of the helix. This wire reduces the possibility of kinking or stretching of the helix with resultant fracture and possible embolization of the broken-off fragment;
- (d) and each end of the guide wire is finished by a polished, rounded tip.

In spite of these safety features, complications directly attributable to guide wires do occur and the following have been reported: