lysine has been proposed as a tool for estimating glomerular filtration rate. Aprotinin has not been reported to inhibit tubular reuptake of microglobulins. However, aprotinin is metabolized by the same renal transport system as LMW proteins. 6 Although the influence of aprotinin on renal processing of LMW proteins has not been evaluated, α1 microglobulinuria without change in serum creatinine has been reported in cardiac surgical patients after the use of this agent. 2 A possible mechanism to explain these observations without implicating renal injury is that high levels of aprotinin in glomerular filtrate may temporarily exceed tubular reserve for LMW protein reuptake, causing microglobulinuria.

In light of the interactions between renal LMW protein metabolism and available antifibrinolytic drugs, α1 and β2 microglobulinuria should be considered unreliable markers of renal injury during cardiac surgery whenever these agents are used. In addition, the conclusions of cardiac surgical studies in which microglobulinuria is used to assess renal insult should be carefully evaluated for the use of antifibrinolytics. The renal metabolism of albumin and other LMW proteins (e.g., lysozyme, ribonuclease, retinol binding protein) is also influenced by antifibrinolytic therapy, and similar concerns about their use as markers of proximal tubular insult apply. A second interesting ramification of the interactions of antifibrinolytic agents with renal transport mechanisms is that effects that confound the use of microglobulin markers for tubular injury may also constitute a renal insult. Evidence unrelated to LMW protein metabolism implicates antifibrinolytic agents as harmful to the kidney during cardiac surgery. 2 It is possible that tubular proteinuria from antifibrinolytic agents and increased proximal tubular metabolism caused by active transport and catabolism of aprotinin may represent significant additional perioperative renal stresses for the cardiac surgical patient. These issues have yet to be studied.

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The WuScope Technique for Endotracheal Tube Exchange

To the Editor.—We read with great interest the recent letters to the editor relating to the conversion of a nasal intubation to an orotracheal intubation by Dr. Cooper. The letters certainly reiterated the safety and effectiveness issues of various tube exchange techniques, especially in patients with a difficult airway.

In the past few years in our institution, we have been using the WuScope (Achi Corp., Fremont, CA, and Asahi Optical Co.-Pentax, Tokyo, Japan) in the operating room to facilitate double lumen tube placements and to perform subsequent tube exchanges from a double lumen tube to a regular endotracheal tube (ETT) in patients with a difficult airway. One such case has been reported electronically in the May 1997 WuScope Newsletter, which can be accessed on the World Wide Web (http://www.achi.com/htm/newspg2.htm). The same technique has also been applied in the intensive care unit for numerous cases of tube exchange, including a case of conversion of a nasal intubation to an orotracheal intubation.

Briefly, our patient, having documented history of difficult intubation, was a morbidly obese man with a very limited head extension in the intensive care unit with acute pancreatitis, sepsis, and

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adult respiratory distress syndrome. He was being ventilated with 100% oxygen and maintaining a saturation of 85%. The task was to replace the 6.5-mm nasal ETI with a 8.5-mm oral tube. After the upper airway was topically anesthetized and the intravenous sedation was administered, the WuScope, preloaded with the new ETI, was inserted into the oropharynx and positioned anterior to the nasal ETI. As the blade entered the vallecula, the triangular opening between the anterior commissure of the vocal cords and the nasal ETI was easily exposed. A suction catheter (18 French) was advanced out of the new ETI lumen and passed through this triangular opening into the trachea. With the suction catheter securely held in place by the operator firmly compressing the new ETI at its proximal end, the nasal ETI was removed. The new ETI was then advanced over the suction catheter into the trachea. The entire tube exchange procedure was performed by one person, took only a few minutes, and the actual conversion time was less than 10 s, without any change in oxygen saturation.

The WuScope is a tubular laryngoscope with fiberoptic imaging. The rigid blade allows exposure of the larynx. The tubular structure overcomes soft tissue obstruction, creates an intubating space, and protects fiberoptic lenses from secretions. Most importantly, there is minimal interruption of the patient's ventilatory support, and the operator can visually ensure the new ETI a free passage through the glottis. The WuScope technique for tube exchange has worked well for us and should be considered by others as an alternative approach to this important and difficult problem.

Lastly, we would like to share with the readers some issues of importance. First, as with any of the previously reported tube exchange methods, previous expertise with the use of the WuScope is essential. In our Institution, we have a combined experience of more than 1000 intubations with this device. Second, we find the use of muscle relaxants is often not necessary for tube exchange using the WuScope technique because glottic exposure can be achieved in the neutral position without jaw lifting or head extension. Before the procedure, we first thoroughly suction the patient’s upper airway, then tracheal 10 ml lidocaine, 2 or 3%, into the pharynx to allow the glottic area to be anesthetized. Third, as with other techniques, care must be taken to ensure that the suction catheter is not inadvertently withdrawn as the original ETI is removed. Fourth, if one is concerned that the oxygen insufflation provided through the WuScope oxygen channel may be insufficient for a patient with severe adult respiratory distress syndrome, a tube exchanger, rather than a suction catheter, may be an alternative conduit for tube advancement and may provide the opportunity for jet ventilation if oxygen desaturation occurs or if the tube exchange requires additional time.

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Venous Cannulation in Small Infants: A Simple Method to Improve Success

To the Editor.—It can be quite difficult to insert an adequately sized and reliable intravenous cannula into small infants. Small infants frequently arrive in the operating room bearing the scars of multiple previous attempts at venous access, which limit the remaining options. If blood transfusion may be required, it is necessary to have at least a 22-gauge cannula.

I have found that my success rate at the cannulation of very small vessels, e.g., those fine veins on the dorsum of a preterm or small infant’s foot, has been much improved by using the following technique. A venous tourniquet is placed and the skin is prepared in the usual fashion. A 22-gauge angiocath (Angiocath, Becton Dickinson Infusion Therapy Systems, Inc., Sandy, UT) is inserted toward the vein at a shallow angle. As soon as there is a “flashback” of blood into the hub of the needle, the cannula is held absolutely still, and the needle is very gently removed. Blood will usually be seen flowing back into the cannula. A 0.018” (0.46-mm dia) spring-wire guide (Spring wire

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