REFERENCES

Floating Around
Use of the Pulmonary Artery (Swan-Ganz) Catheter in Critical Care

To the Editor:
It has been 8 years since Eugene Robin raised provocative questions about use of pulmonary artery catheters (PACs), yet despite this the catheter has remained a standard tool in the management of critical illness. Therapeutic interventions have increasingly been linked to quickly derived catheter data; however, questions persist regarding its usefulness, risks, and benefits. We retrospectively analyzed our utilization of PACs at our 410-bed urban hospital, where placement and management decisions are made routinely by attending physicians and house staff. A total of 104 PACs were placed during the year 1991. Data on 87 of these were available for analysis, representing 85 patients. Patient characteristics and indications for placement are shown in Table 1.

In 76 cases (87 percent) the initial central venous pressure, right atrial pressure, pulmonary arterial pressure, and pulmonary arterial occlusion pressure readings were documented. Right ventricular pressures were documented in only 36 (41 percent). Initial complete hemodynamic values, including cardiac output, systemic vascular resistance, and pulmonary vascular resistance, were obtained within 24 h of placement (mean, 7.1 h) in 52 cases (59.8 percent). In 5 (5.7 percent), the values were obtained between 24 and 48 h after placement, and in 30 (34.5 percent) there was no record that these measurements were ever obtained.

Therapeutic decisions attributable to PAC data measurement occurred in 32 cases (37 percent) within the first 24 h of catheter insertion (mean, 2.8 h). In 9 (10 percent), intervention occurred within 24 to 48 h of placement. In 46 (53 percent), the data obtained did not result in any documented change in therapy. Catheter complications occurred in 3 patients (3.5 percent) with no direct mortality.

This review examines utilization practice regarding the PAC. Our search of the literature revealed no reports on such patterns of general use, but found the focus rather on patient outcomes. We found a surprising underutilization of the PAC potential, but more unexpectedly found in 50 percent of cases that generation of hemodynamic data did not lead to any change in the existing therapy. We realize that this absence is not evidence that the PAC was not valuable for patient management, as the data obtained may have served to confirm the value of already existing therapy. We suggest, however, that use of the PAC in practice may be different from its use under study conditions, and urge that a more thorough examination of the actual utilization be undertaken to help answer questions surrounding the place of this expensive intervention in our critical care units.

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Interventional Radiology Concerns

To the Editor:
The recent article discussing a thoracic aorta plaque following percutaneous catheter drainage of an upper abdominal abscess is sobering but comes as no surprise. Another recent article described medical imaging and interventional radiology with regard to performing thoracenteses, the management of thoracic empyemas, and transbronchial (percutaneous) needle aspiration biopsy of the lung. I believe that radiologists performing these procedures represent an iatrogenic form. There are several reasons hospitals, clinicians, and patients should be concerned when radiologists perform these procedures. Hospitals
should be concerned because the cost can be formidable. Interventional radiology routinely uses the technology available be it ultrasound for thoracentesis, or computerized tomography for chest tube placement or transthoracic needle aspiration biopsy of the lung. There is little documentation that these technologic devices improve outcomes. Expenditures for diagnostic x-ray studies indeed are one of the fastest rising components of healthcare services.

Patients should be concerned because these three procedures have a potential for significant complications. Few radiologists, in my experience, are proficient in intubation, cardiopulmonary resuscitation, or chest tube insertions. Moreover, these procedures become an isolated event in the management of patients.

Clinicians should be wary because official radiology reports can encourage self-referral and trap the attending physician. Clinicians frequently “get run over by the bandwagon.”

The attitude that “imaging-guided catheter techniques provide heretofore unsurpassed precision and accuracy in performance of these procedures” should be tempered. I fear that interventional radiology is yet another example of fractionated healthcare and occasionally a detriment to the best interest of the patient. Interventional radiology will soon begin to face the rigors of technologic assessment, hospital credentialing committees, and peer review organizations. The concept of informed consent and other legal ramifications that radiologists have avoided in the past will need to be addressed. I have reservations that these practitioners “flounder along in an aimless fashion, never being able to gain an accurate conception of disease...hitting now the middle and again the patient, he himself not knowing which.” Their intrusion into the clinical arena prompts this caveat emptor.

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REFERENCES

Laceration of the Cuff of an Endotracheal Tube During Percutaneous Dilatational Tracheostomy

To the Editor:

The technique of percutaneous dilatational tracheostomy described by Ciaglia et al1 appears to be gaining popularity and has been the subject of several recent reports.2,3 It is well recognized that the cuff of the endotracheal tube is at risk of puncture during first placement of the guidewire needle, and it is recommended that the tube be withdrawn to a position immediately below the cords prior to insertion of the needle.

We wish to report a case in which the cuff was, not simply ruptured, but unwittingly torn such that two separate fragments were left in the trachea during an otherwise uneventful tracheostomy (Fig 1). The defect in the cuff was discovered only on withdrawal of the endotracheal tube, and bronchoscopy was needed to recover the fragments.

Figure 1. Lacerated endotracheal tube cuff with the two fragments.

We now remove the endotracheal tube from the trachea before the procedure begins, leaving only the tip between the cords, using the inflated cuff as an obturator above the cords in order to ventilate the lungs. This works satisfactorily and removes the cuff from risk of puncture and laceration.

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REFERENCES

Bronchial Responsiveness to Methacholine in Insulin-Dependent Diabetic Patients With Autonomic Neuropathy

To the Editor:

The bronchomotor tone is determined by the synergism-antagonism of several systems: the parasympathetic system, the sympathetic system, and a third nonadrenergic-noncholinergic system. We can suppose that in diabetic patients with autonomic diabetic neuropathy demonstrated at the cardiovascular level, compromise of the vagal tone can be present. The data in the currently available literature are conflicting: a reduced bronchial response to hyperventilation of cold air and inhalation of methacholine (MTH) have been reported,1,2 but so has an increased reactivity to histamine.4 These discrepancies might be due to confounding factors, such as smoking habits and genetic differences of the studied individuals related to the type of diabetes.

To evaluate the presence and type of alterations in the autonomic nervous system of the diabetics in diabetic disease, we studied the reactivity to a bronchial stimulating test with MTH in 20 insulin-dependent diabetic patients (aged 38 ± 14 years) without personal and/or familiar anamnesis of bronchial hyperreactivity. Patients were subdi-