REFERENCES


A Proper Balance

Fiberoptic bronchoscopy should be performed in a safe, efficient, and reasonably comfortable manner. Maximal comfort can be obtained in the operating theater using general anesthesia. This sacrifices efficiency, increases cost, and exposes the patient to the risks of general anesthesia. Bronchoscopy also can be performed solely with local anesthesia. Obviously, this does not optimally alleviate pain and anxiety. If the patient’s cough and pain are not controlled, the yield of the procedure can decrease. The use of IV sedation and analgesia (conscious or moderate sedation) provides a middle ground between these two approaches. It is a compromise between general anesthesia and a “bite-the-bullet” approach. The goal of moderate sedation is to achieve a proper balance among comfort, efficiency, cost, efficacy, and safety.

Controlled studies provide the most useful information in developing techniques to refine bronchoscopy. Such studies show that bronchoscopists and endoscopic nurses can distinguish patients receiving sedation from those receiving placebo. These studies show that there is a better yield with sedation. Hypoxemia and tachycardia are common during fiberoptic bronchoscopy. In one study, a surprising number of patients showed evidence of myocardial ischemia. A study also revealed that nasal insertion is associated with pain. The same study showed that patients with poor health and lower educational levels experience more pain than better educated patients who are in better health. In one study, despite the use of “adequate sedation and analgesia,” 10% of patients experienced inadequate control of pain.

In many respects, the pediatric population represents the most difficult challenge for the bronchoscopist. Some advocate that all pediatric fiberoptic bronchoscopy be performed in the operating room with the help of the anesthesia department. In this issue of CHEST (see page 315), Fauroux et al report...
important information about the efficacy and tolerability of fiberoptic bronchoscopy in children using a mixture of 50% nitrous oxide and 50% oxygen. This study was placebo-controlled, and it showed that the use of nitrous oxide resulted in a more successful procedure. Because this was a pediatric group with many subjects who were < 6 years of age, the authors developed multiple methods to evaluate the successfulness of the analgesic agent. These methods included the use of a CHEOPS score (a score measuring crying, facial expression, verbal expression, torso posture, touch, and leg position) by the endoscopy team, a self-reported assessment by patients old enough to do so, and the use of behavioral responses as judged by blinded independent observers who reviewed video recordings of each bronchoscopy. Using these methods, the authors were able to show that the nitrous oxide increased efficacy and decreased patient-perceived pain, and its use resulted in better scores by the independent observers. Nitrous oxide also improved the CHEOPS score by the endoscopy team.

Although their article is to be lauded for its methods and results, like any good study it raises several questions. These questions apply to the adult population as well as to the pediatric population. One obvious question concerns the role of nitrous oxide compared to other sedatives and analgesics. Other questions include the best route of administration of such drugs, and whether all patients should have an IV line started before the procedure. Given the rapidity of onset of a gaseous agent, one can see the attractiveness of nitrous oxide. However, no mention is made in their article of how endoscopy personnel are protected from chronic exposure to this agent. Obviously, most children appreciate the avoidance of an IV line. However, there are no studies comparing the safety of bronchoscopy with or without IV access. The answer to this question would require a large, expensive, multi-institutional study. Such a study is unlikely to be performed. In adults, the presence of preprocedural IV access allows the rapid treatment of hypotension bradycardia or cardiac arrhythmia. IV access also is necessary for IV sedation.

This study also highlights the important, but often overlooked, fact that there is much to be learned about the best way to perform bronchoscopy. Much of what we do is rooted in empiric observation. Many aspects of bronchoscopy are understudied. Many bronchoscopists routinely administer atropine prior to each procedure. Is this of benefit, or should we wait for the occasional vasovagal reaction before administering the drug? Also, there are no studies comparing different sedative and analgesic regimens.

Fauroux et al have shown that science can and should contribute to the art and science of bronchoscopy. Their article has pointed out the usefulness of nitrous oxide in pediatric bronchoscopy. They have emphasized several methods to study sedatives and analgesics in bronchoscopy. Their article also reminds us of the importance of answering questions about the best way to do something. Bronchoscopists should heed Aesop’s warning about “familiarity breeding contempt.” Because the procedure is generally safe and tolerated, it does not mean it is as well-tolerated and as safe as it might be. The scientific collection of data regarding the safety, efficacy, cost, and comfort of bronchoscopy is necessary. By collecting such data, we can hope someday to attain the proper balance among the competing goals of safety, cost, efficacy, and efficiency.

Robert J. Lenox, MD, FCCP
Syracuse, NY

References