ATRIUM Clinical Update

Chest Drainage Research in 2006

In this December newsletter, we like to provide you with a quick overview of research published this year relating to cardiothoracic surgery or trauma. Here's what we found interesting.

Re-exploring the Chest in the ICU

A nurse's perception of whether it's good practice to open a patient's chest in the ICU in the first 24 hours after cardiac surgery often depends on whether the nurse works in critical care or the OR. A British study in the *Annals of Thoracic Surgery* examined the feasibility of re-exploration (REX) in the ICU instead of taking the patient back to the OR. Over 10 years, 243 patients (3.4%) required REX for bleeding or other hemodynamic instability (cardiac arrest REX excluded). The surgeons describe a scenario in which "surgical technique is identical to that in theater [OR]." The ICU was one large room with curtains separating the beds. The authors state, "Traffic in the ICU is not restricted during [REX]." Members of the REX team came from the OR, performed a surgical scrub and wore full sterile garb.

Eighty-six percent of patients had REX for bleeding, 9% for suspicion of cardiac tamponade, and 5% for both. Of the patients bleeding when the chest was opened, 55% had focal bleeding at the operative site, 33% had diffuse bleeding and 5% had both. The main concern about an ICU REX is sternal wound infection; their rate was no different than patients who did not have REX. The authors see ICU REX as preferred over the OR since the transfer delays the procedure, carries high economic costs, and imposes a great demand on the OR. The ICU and perioperative nurses' views are not included.

Charalambos CP, Zipitis CS, Keenan DJ: Chest reexploration in the intensive care unit after cardiac surgery: a safe alternative to returning to the operative theater. *Annals of Thoracic Surgery* 2006;81:191-4.

When Hemothorax is Missed

An article in the *American Journal of Surgery* examined the incidence of occult or "missed" hemothorax in blunt trauma patients. Researchers did a retrospective review to compare the identification of hemothorax on a standard supine chest radiograph with detection on a thoracic computed tomography (TCT) scan. Traditionally, TCT was done only when an abnormality was detected on the radiograph.

The majority of patients had been in an MVC, were male, mean age 43, with mean injury severity score (ISS) of 20. There were 107 cases of occult hemothorax in 88 patients (21.5%). Most of these patients required mechanical ventilation and 34 of them also had an occult pneumothorax. Occult findings on TCT were associated with rib fractures and a higher ISS. Once the occult fluid and air was identified, the researchers identified characteristics that differentiated patients treated with chest tubes from those who were not. The significant variables were: ISS — patients who required chest tubes had a higher average ISS (30.02 v. 21.04), a greater need for mechanical ventilation (46% v. 21%) and were more likely to have occult pneumothorax in addition to occult hemothorax. Nothing unexpected there.

These findings, however, raise the question about the cost/benefit ratio of performing TCT in all blunt chest trauma patients, particularly in lower-volume trauma services. On the benefit side, what potentially serious complications can be avoided when abnormalities are discovered that do not appear on a standard chest radiograph? On the cost side, do TCTs result in over treatment — exposing patients to the risks associated with chest tubes that otherwise would not have been placed or needed? Interesting questions for future research.

Stafford RE, Linn J, Washington L: Incidence and management of occult hemothoraces. *American Journal of Surgery* 2006;192:722-726.

Pain Management During Chest Tube Removal

Nursing researchers from Wright State University conducted a study to determine if a deep-breathing relaxation exercise in conjunction with opioid analgesia would reduce patients' pain during and after chest tube removal (CTR) following coronary artery surgery.

Breathing exercises consisted of inhaling slowly through the nose and exhaling through pursed lips. Patients were asked to start the relaxation breathing 5 minutes before CTR, to shift focus to their breathing and to use relaxation breathing as long as they wanted after the procedure. A challenge for the researchers was a lack of standardization in opioids used, but the control group and the treatment group were equivalent in type of opioid and route, dosage equivalents and mean pain score before the procedure (5.05 on a 1-10 visual analog scale). Immediately after CTR, the control group's mean pain rating was 8.61 versus 6.57 in the treatment group (p = .006). At 15 minutes after CTR, the control mean was 5.57; treatment mean was 3.07 (p = .004).

These researchers recommend nurses immediately adopt teaching breathing exercises as a routine nursing intervention adjunct to opioids for pain management, and to participate in developing multidisciplinary postoperative pain management protocols, as the mean score of 5.05 before CTR shows that postoperative pain was not properly managed at baseline.

Freisner SA, Curry DM, Moddeman GR: Comparison of two pain-management strategies during chest tube removal: relaxation exercise with opioids and opioids alone. *Heart & Lung* 2006;35:269-276.

Mediastinal Nodes in Lung Cancer

Traditionally, there has been a variety of expert opinions as to whether to remove all, some, or none of the mediastinal lymph nodes during pulmonary resection for lung cancer. A special study group of the American College of Surgery Oncology is examining a number of issues related to node dissection. The first published report looks at mortality and morbidity associated with complete mediastinal lymphadenectomy. Patients with early-stage cancer were studied — a total of 1,023 across the United States.

Operations lasted 15 minutes longer when lymph node dissection was done in comparison to lymph node sampling. There was no difference in complications or deaths between the groups. Thus, the researchers now recommend full lymph node dissection for disease staging, while the patients in this study are followed-up long term to see if lymph node dissection improves longer-term survival.

Allen MS et al and the ACOSOG Z0030 study group: Morbidity and mortality of major pulmonary resections in patients with early-stage lung cancer: initial results of the randomized, prospective ACOSOG Z0030 trial. *Annals of Thoracic Surgery* 2006;81:1013-1020.

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In The Literature

Recognize and Reward Staff

In the current issue of *Nursing Management*, nurses from The Medical Center in Columbus, GA describe an interesting approach to competing for staff among 4 — soon to be 5 — hospitals in the area. Instead of a paper-based sign up for extra shifts followed by hours on the phone calling people to cover open shifts, the system was set up online.

When nurses log in, they are only shown shifts that meet their skills and qualifications. The technology locks out nurses who would be signing up for overtime for the first week, providing first access to part-time and per diem staff only. Using technology also gives everyone the opportunity to see the open shifts at the same time online from home or work, increasing the system's fairness. Once the system was designed, the hospital added incentive points to each open shift. Higher points are awarded for working an open shift on evenings, nights, weekends and holidays. Designed like a credit card bonus system, staff members collect points that can be cashed in for a variety of awards from a catalog, ranging from movie tickets and gift certificates for local restaurants to MP3 players.

This approach has saved each nurse manager 4 hours a week on staffing, has improved morale by giving nurses more flexibility and choices about scheduling, and helped nurses become more comfortable with technology, leading them to more on-line learning opportunities.

Source: McKnight B, McDaniel S, Ehmann V: Try point incentives for employee reward and recognition. *Nursing Management* 2006;37(12):42-45.

Unforgettable Patient Care Events

Researchers from the University of Tennessee interviewed staff nurses about their most unforgettable patient care experiences to see if there was a common theme or long-term consequences for nurses who described them. Nurses from a number of specialty areas were interviewed. To limit bias, there were no set questions; the opening for the nurses was, "Tell me about a time when you provided nursing care to a patient." Questions were only posed to clarify what the nurses were saying.

Four themes emerged regardless of nursing specialty: extraordinary events that broke routine, events that were incomprehensible to the nurse or led to "what if" questions long after the event, events in which nurses wanted to understand what could have been done differently, and the effects of working alone or with a team.

Nurses universally talked about lessons learned, and many expressed moral distress (even years later) at trying to make sense of the elements of their work that diminished their efficacy, such as poor staffing, a general lack of resources, and a lack of collegial support. The researchers suggest that moral distress is inherent in the practice of the registered nurse — not only in life or death situations, but in the hundreds of decisions a nurse makes every day.

Source: Gunther M, Thomas SP: Nurses' narratives of unforgettable patient care events. *Journal of Nursing Scholarship* 2006;38(4):370-37.

Best Wishes for a Happy & Healthy New Year!
From Your Friends at Atrium

Nurses and Patients See Needs Differently

The current issue of *Dimensions of Critical Care Nursing* includes a study from the University of Alabama in which nurse researchers explored the differences between what nurses and patients thought were special needs in critical care.

Nurses identified pain management, nausea, and general comfort as special needs for their patients, and patients identified miscommunication, anxiety, pain and relaxation as their special needs. A particularly interesting finding is that nurses attributed much anxiety to pain management, whereas the patients were anxious about whether caregivers were talking about them, the presence of the Foley catheter, and the unexpected sights and sounds of the critical care unit.

Source: Godfrey B, Parten C, Buckner EB: Identification of special care needs. *Dimensions of Critical Care Nursing* 2006;25(6):275-282.

On the World Wide Web

Every year, more sites are introduced or redesigned to provide nurses with ready access to the latest research and news coming from major conferences. Check these out:

The Virginia Henderson International Nursing Library, maintained by Sigma Theta Tau can be reached directly at http://www.nursinglibrary.com

Medscape for Nurses has a variety of full-text journals online, as well as excellent reporting from major national and international conferences. They also provide e-newsletters, CE features and Webinars — all free. Just sign up at http://www.medscape.com/nurses. (And for the tech savvy folks out there, you can add a Medscape button to your Google toolbar.)

Pubmed now has a feature called "My NCBI." Users can log in and save searches on the NCBI server. Then, just log in from any computer and the information will be there. This is great if you do searches online at home or in an office and then want to call them back up in the medical library. There are other interactive services available in conjunction with your medical library: http://www.pubmed.gov and click on My NCBI in the upper right corner.

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