Clinical Update for the Professional Nurse March 1999

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Clinical Update

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Caring For Pneumonectomy Patients

Pneumonectomy is the removal of the entire right or left lung. It used to be a common procedure for patients with lung cancer or tuberculosis, but today, it accounts for approximately 20% of lung resections for cancer. In trauma patients, the incidence is lower — only about 15% of all chest trauma patients require thoracotomy, and of those, only 4% undergo pneumonectomy.

Pneumonectomy is a relatively high-risk procedure with operative mortality reported between 5% and 10% (in trauma patients, as high as 30% to 50%). Because of the empty space in the chest, postoperative hemostasis is critical. After lobectomy, the remaining lung tissue can compress capillary oozing. But after pneumonectomy, blood can ooze into the empty space, or the patient can have bronchial arterial bleeding that goes undetected for some time because the blood is draining into an empty space.

Beware Of Right-Sided Surgery

The most dramatic and life-threatening postoperative complication is cardiac herniation. This is a much greater risk for patients with right-sided surgery. Without a lung in the right hemithorax, the heart tends to fall into the empty cavity by rotating on the vena cavae. Cardiac output drops dramatically as the venous return is kinked off. Nurses can readily identify this complication if the patient's condition suddenly deteriorates after being turned from the left lateral decubitus position to supine, or rolled onto the right side.

This potentially fatal complication occurs when there is an opening in the pericardium. Even if the surgeon sews a hole made in the pericardium during surgery, it can tear open postoperatively when the suture line is subjected to pressure from the beating left ventricle. Any opening in the pericardium of a patient undergoing right-sided pneumonectomy must be patched, not simply sutured closed.

If a patient's condition suddenly deteriorates after repositioning, put the patient in the left lateral decubitus position and prepare for immediate transfer to the OR. In some cases, the chest may be opened at the bedside to reposition the heart.

Test Your Knowledge...

Q. If a postoperative pneumonectomy patient with a chest tube develops a leak at the stump of the mainstem bronchus, how would you know?

Answer on other side

Postoperative Chest Drainage

After pneumonectomy, a patient may or may not have a chest tube in place. The surgeon makes this decision at the time of the operation. Chest tubes are needed when the patient has an infected pleural cavity pre-operatively, or when the surgeon wants to monitor potential bleeding through chest tube drainage postop. Chest tubes are much less common today; the closed-chest technique is more often used.

When there is no chest tube, the surgeon aspirates air from the operative hemithorax at the end of the procedure. The volume of air removed is approximately 10 ml per kilogram. The goal is to establish slight negative pressure on the operative side so that the mediastinum will remain in the center of the chest. The position of the trachea above the suprasternal notch is monitored to guide the aspiration. If too much air is removed, there will be too much negative pressure in the chest, and the mediastinum will be pulled to the operative side.

Caring For The Patient With A Chest Tube

You don't need a special chest drain for a postpneumonectomy patient. A standard chest drain with a water seal chamber will do the job. When setting up the chest drain, fill the water seal to the +1 cmH_2O level rather than the usual +2 cmH_2O. This will allow you to balance the pressure within the operative hemithorax and reduce the risk of significant pressure changes that could shift the mediastinum. Positive pressure will be released when the resistance of the water in the water seal chamber is overcome. The lower water level allows this to occur more readily.

DO NOT put water in the suction control chamber; suction must NOT be applied to these patients. Suction could immediately pull the mediastinum to the operative side and result in cardiac arrest. Make sure to tape a note on the front of the drain stating **NO SUCTION**.

Except in the case of empyema, the chest tube is usually removed within 24 hours of surgery.

Clinical Update is an educational newsletter provided by Atrium Medical Corporation and is edited by Patricia Carroll, RN,C, CEN, RRT, MS.

In The Literature

Raise Morale And Retain Staff

Today, virtually every nurse is asked to do more, with fewer resources. As a result, morale can suffer. In this month's *Nursing Management*, Janice McCoy provides a quick and easy guide to developing a reward and recognition program for your staff.

McCoy lists sample staff rewards ranging from no-cost recognitions such as a reserved parking space or handwritten note of appreciation, to a high-cost program that can include vacations, prizes or additional paid time off. She reviews the benefits of implementing a program in any practice setting.

Recognition for a job well done is the best motivator for employee performance. You're sure to pick up a few tips you can institute right away from this quick read.

Marketing 101

With all the courses crammed into nursing school, most nurses haven't had a chance to formally learn much about marketing. But savvy nurse managers today can be the heart of any team an organization assembles to brainstorm and develop new products and services.

The current issue of *Intravenous Nursing* is dedicated to professional development. An article by Lynn Czaplewski provides a step-by-step walk through the principles of marketing. While the article is directed to nurse entrepreneurs, the principles apply to any setting — marketing a new product line from the OR, or a new service in critical care.

Content includes: marketing concepts, evaluating client / customer needs, and the crucial "5 P's" of marketing: public image, product, price, promotion, and placement. Don't have time for a course? Read this article, and you'll have the basics.

Test Your Knowledge...

A. There would be bubbling in the water seal chamber, and the patient would develop shortness of breath.

If you have any technical questions about chest drainage, or if you need product information or educational support materials, please call or fax Atrium's hotline anytime.

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On the World Wide Web...

In honor of the AORN Convention, here are web sites about cardiothoracic surgery.

www.sts.org
This official web site of the Society of Thoracic Surgery provides a wealth of information about thoracic surgery, including access to special features from the *Annals of Thoracic Surgery*, and a special patient page.

www.ctsnet.org
If you visit only one thoracic surgery site, make it this one. This web site is a collaborative effort of the major cardiothoracic organizations around the world. While it is designed for surgeons and residents, the material here would be of interest to any nurse involved in the care of thoracic surgery patients. Features include discussions on LVRS, journals, photographs, papers on special surgical techniques, and case reports.

www.ctsurgery.com
This site, for Cardiothoracic Surgery of Maine, PA, is included because it is the only thoracic surgery site we visited that featured profiles of nurses. This web site provides photos and bios of the nurse members of the practice and describes the important role they play. A tip of the hat to this surgeon group for giving nurses the same visibility as the surgeons and PAs on the web site.

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Marketing 101

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