Question of the Week #23 Prevention of transmissible infections

You are the charge nurse on days in a busy community hospital. Many of your patients are homeless, low income, or have limited access to health care. Dr. S. calls and wants to schedule a bronchoscopy with sputum collection for later on in the day. When you ask about the patient's health history, he states that the patient has been coughing up blood and has been running a low-grade temperature. He's lost 20 pounds in the past month. He was on Combivir but stopped taking it because of the side effects and cost.

What condition(s) do you suspect? What other information would you like to have? What is the best course of action in caring for this patient?

Response:
Combivir is a reverse transcriptase inhibitor used to treat HIV. Based on our patient’s signs and symptoms and history, active tuberculosis (TB) is highly suspected. Other diseases to rule out include lung cancer, *Pneumocystitis jiroveci pneumonia* (PCP), bacterial pneumonia, acute bacterial bronchitis, pulmonary embolism, and pulmonary hypertension (Everett et al, 2010). More than one infectious agent may be present concurrently.

Perioperative nurses do not always have the luxury of knowing a patient’s infectious status prior to initiating care. Implementing standard precautions for all patients, regardless of suspected or confirmed infectious status is the first line of defense in decreasing the transmission of disease from patient-to-patient or patient-to-health care worker. Implementing the appropriate transmission-based precautions based on the disease entity is the second step. Standard precautions have been updated to include:

- Appropriate hand hygiene
- Use of appropriate Personal Protective Equipment (PPE)
- Safe injection practices
- Adherence to respiratory hygiene/cough etiquette

(Tarrac, 2008).

Since the HIV virus is spread through blood and body fluids, contact precautions must be implemented. These include gloves (double-gloving is now recommended [Thomas-Copeland, 2009]), masks, protective eyewear, and gowns. Maintaining current policies and procedures on exposure control, staff education, and using safety engineered, needle stick avoidance devices other ways to decrease the risk of exposure.

TB should be considered an opportunistic infection in HIV-infected persons, and any person admitted to the hospital with HIV/AIDS and a pulmonary condition should be placed in respiratory isolation (Cohen, 2006). To OR personnel, this means implementing respiratory transmission precautions, including:

- Wearing a NIOSH-certified N-95 respirator. OSHA now requires annual fit-testing for these respirators (Schweon, 2009).
• The patient should be placed in an airborne infection isolation room (formally known as a negative airflow room) and transported only when absolutely necessary, preferably at non-peak hours. The patient should wear a surgical mask during transport, and until anesthetic induction if at all possible. Waiting areas should be bypassed. The door to the room should remain closed, with limited traffic in and out of the room.
• If the procedure cannot be delayed, scheduling it at the end of the day serves two purposes: fewer people (visitors and staff) will be present in the corridors, and it allows for a longer period of air exchanges in the OR before it is used again. The door should be kept closed until the air has been completely exchanged. TB bacteria can stay suspended in the air for several hours.
• Results of chest x-ray and CT scan should be requested and available to the health care team assigned to the room. A CD4+ cell count will help determine the degree of immune suppression. Obtain a more thorough history, including contacts, travel to high risk areas, etc.
• Notifying any departments (PACU, radiology, patient unit, etc.) prior to transporting the patient. The state health department must be notified of confirmed TB cases. Your infection prevention person should be able to help with this.
• If at all possible, dedicate equipment specifically for this patient. The anesthesia care provider should use a filter for the endotracheal tube.
• Maintain strict aseptic technique to minimize number of microorganisms introduced into the environment.
• Surgical instruments and equipment must be cleaned and high-level disinfected according to manufacturer’s instructions. The room should be meticulously cleaned. Transporters, central processing, and housekeeping personnel should follow the same standard and transmission-based precautions as the surgical team.
• Annual TB screening for staff should be up to date. Staff suspected of being exposed to TB may be advised to have a tuberculin test 8 weeks post exposure. (Neil, 2008).

The circulating nurse should be prepared to receive and process the following specimens:

- Blood cultures (preferably drawn prior to initiation of antibiotic therapy)
- Room air arterial blood gases
- Sputum sent for gram stain, cultures, PCP stain, and Acid-Fast Bacilli (AFB)

Canola et al (2006) have developed a nursing guide which could be adapted to both electronic and paper medical records and incorporated into patient transport/boarding pass document. A form is color-coded with the 3 types of transmission precautions (contact, droplet, and airborne) and has a chart on the back with information categorized by disease with the appropriate precautions (PPE, isolation, transport needs, discharge management, etc.). The sign could be placed on the OR door or placed on the patient’s chart.
Hospitals are required to provide PPE’s for their staff. It is interesting to note how many staff bypass these safety devices, especially protective eye wear. Failure to use the appropriate PPE may result in denial of a worker’s compensation claim. Consider adding wearing the appropriate PPE’s to your time-out surgical checklist. You’ll be protecting your patient and your fellow health care workers.

References and Resources


National Institute for Occupational Safety and Health. (http://www.cdc.gov/niosh)


