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Bronchoscopy and perioperative care

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Abstract

Bronchoscopy is used to examine the inside of the nasal cavity, pharynx, larynx, vocal cords, and tracheal bronchial tree. Bronchi and lungs. A bronchoscope is a thin, tube-like instrument with a light and a lens for viewing. The bronchoscope is inserted through the nose or mouth and is passed down in the tracheobronchial tree for examination. Bronchoscopy may be used to detect cancer or to perform some treatment procedures. Epistaxis, Bronchospasm, Bleeding, and Hypoxemia are the most common complications occurred in bronchoscopy procedures. Nurses play a key role in bronchoscopy procedures as well as the preparation of patients and instruments. Nurses have liable responsibility in Preoperative and Intra-operative Preparation and Postoperative care. The nurse's responsibility before a bronchoscopy includes maintaining a viable airway and closely monitoring the patient's respiratory status, and relieve patient anxiety by providing information on what to expect and what to avoid. Explain the procedure to the patient because Procedural fear is the most common in most patients. The equipment is required for bronchoscopy should be prepared in the trolly.

Conclusion The nurses play a key role in the operating room as well as the hospital, they should be technically competent in handling and assisting the bronchoscopy procedure. Nurses should aware of complications and management of complications in operation theatre and ICU. This article will give knowledge about the handling, care, and complication of the bronchoscope. Bronchoscopy requires skilled operators and continues to evolve technologically to the advantage of both the physician and the patient. Overall, both rigid and flexible bronchoscopy, are safe and effective procedures for the diagnosis and treatment of airway and pulmonary pathology.

Keywords: bronchoscopy, tracheal bronchial tree, instrument

Introduction

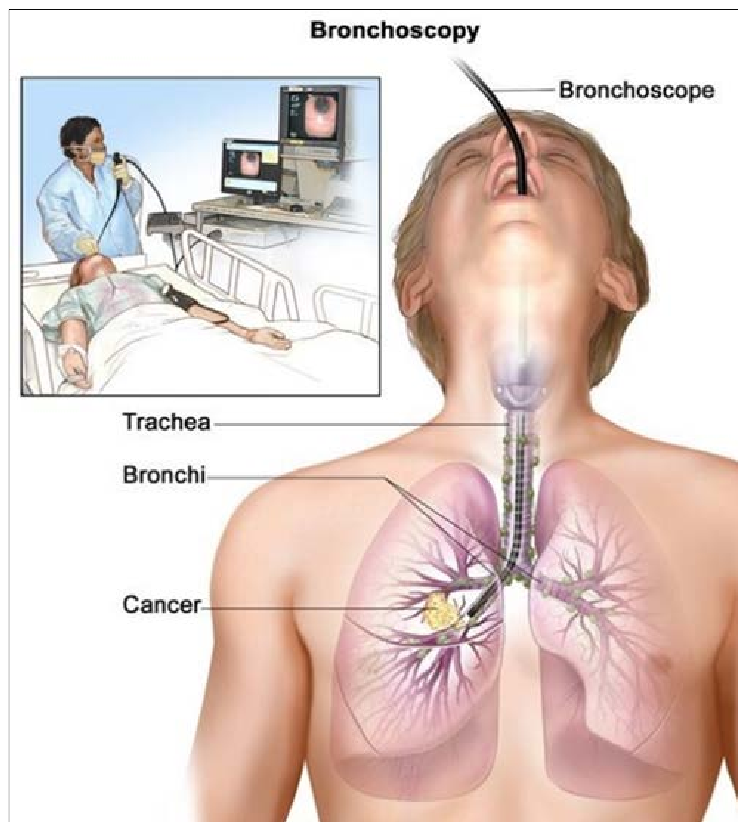
Flexible bronchoscopy has become the most widely used invasive technique for diagnosing and treating diseases of the lungs and bronchi. German laryngologist Gustav Killian performed the first bronchoscopy by using rigid bronchoscopy to remove a pork bone from a patient's airway in 1897 [1]. Bronchoscopy is used to examine the inside of the nasal cavity, pharynx, larynx, vocal cords, and tracheal bronchial tree. Bronchi and lungs. A bronchoscope is a thin, tube-like instrument with a light and a lens for viewing [2]. It may also use as a tool to remove tissue for microscopic examination to rule out signs of disease. The bronchoscope is inserted through the nose or mouth and is passed down in the tracheobronchial tree for examination. Bronchoscopy may be used to diagnoses cancer or to perform some therapeutic procedures.

Flexible bronchoscopy with technological advancement was first performed in 1967. Bronchoscopy can be used as therapeutic and diagnostic. Suspected foreign body removal, Suspected malignancy examination, Bronchial washings examination of Haemoptysis, and Persistent problems are the main Diagnostic purpose of bronchoscopy.

Secretion removal, Bronchial lavage, treatment of Stenosis, and Atelectasis are the therapeutic reason for bronchoscopy. Foreign body obstruction can be treated by bronchoscopy. The modalities used for removing the foreign bodies such as vegetables, flosser, cotton, shrimp, the core of plum, peanut, and metal wire, etc. direct suction by bronchoscopy, forceps, loops, knife, basket, electromagnet, and cryotherapy [3].

Epistaxis, Bronchospasm, Bleeding, and Hypoxemia are the most common complications occurred in bronchoscopy procedures.

Nurses play a key role in bronchoscopy procedures as well as the preparation of patients and instruments. Nurses have liable responsibility in Preoperative and Intra-operative Preparation and Postoperative care. before a bronchoscopy, the nurse' should maintain a viable airway and closely monitor the patient's respiratory status, and relieve patient anxiety by providing information on what to expect and what to avoid. Explain the procedure to the patient because Procedural fear is the most common in most patients [4]. Before the procedure, informed consent must be obtained from the patient. Ensuring the fasting status to confirm food and fluid are not taken for 6 hr to 12 hr before the exam, Fasting decreases the risk of aspiration. Check Oxygen saturation before the procedure and obtain baseline vital signs. Instruct the patient to remove any dentures if present. Prepare emergency resuscitation equipment and drugs in the operation theatre. Insert peripheral IV (intravenous) line if required.



Source https://www.cancer.gov/publications/dictionaries/cancer-

The equipment is required for bronchoscopy should be prepared in the trolly. The instrument needs to be kept ready -

- Bronchoscope/Video Bronchoscope
- Video bronchoscope cart
- 10% lidocaine spray- 10% lidocaine is required to control gag, cough reflex and prevent bronchospasm.
- 4% lidocaine -use to give in tratracheal to the sensitized trachea.
- 2% Jelly-for lubrication
- Bowls for normal saline.
- Traps-for collecting bronchoalveolar lavage (BAL).
- Cardiac monitor
- Biopsy forceps-for took biopsy tissue.
- Cytology Brush- it is used to remove cells from the airways for microscopic examination. A bronchial brush is used to find any changes in cells that may lead to cancer and is also used to diagnose other lung conditions.
- Specimen-collection devices, fixatives, and as per institutional policies.
- Syringes for medication delivery, normal saline lavage.
- Bite block
- Sterile gauze for the intermittently clearing tip of the bronchoscope during the procedure.
- vacuum systems (wall or portable) and related suction supplies for scope or mouth.
- High-level disinfection or
- Sterilization agent: glutaraldehyde, ortho-Phthalaldehyde Solution.
- It is the responsibility of OT nurses to inform the surgeon in case of the non-availability of any instruments before the procedure [5].

When the equipment is ready inform the surgeon for bronchoscopy procedure. 10% lidocaine is flushed into the patient's throat on sitting upright position. Provide supine position to patients and attach pulse oximeter (SPO2), O2 mask (keep ready). Put 2 % jelly in nostrils and cover eyes with gauze. Attach video bronchoscope. Insertion of bronchoscope will be done by the surgeon through the nostril and follow the path of the nasopharynx. Examination of the vocal cord, trachea, esophagus, carina and B/L lungs and lobes can be done by bronchoscope.

The nurse working in an operating room and Recovery room should be aware of the post-procedure nursing interventions to be applied after bronchoscopy. Nurses should Assess bleeding and Observe the patient's sputum and report for any excessive bleeding. Explain to the patient that a minimal amount of blood streak is expected and normal for few hours after the bronchoscopy procedure is performed. The nurse should Assesses the respiratory status. Watch out for signs of bronchial spasm or bronchial perforation such as facial crepitus, hypoxemia, hemorrhage, and chest tightness. Continuous vital signs Monitoring to be done, Changes in the vital signs or any discomforts felt by the patient may indicate a possible complication. the conscious patient to be kept in a semi-Fowler's position while for an unconscious patient, place on one side with the head of the bed slightly raised. Maintain fasting status until the anesthesia has worn off and the gag reflex has returned. Advice the patient that they may resume his normal diet, starting with sips of water or ice chips. Prevent aspiration by instructing the patient to spit out saliva rather than swallow it. Relieve anxiety and provide comfort measures. Reassure the patient that hoarseness, loss of voice, and sore throat may occur temporarily. Offer lozenges or a soothing liquid gargle to relieve discomfort

until gag reflex returns. The bronchoscopy assistant nurse must be trained in the setup, handling, cleaning, and care of bronchoscopy equipment and related supplies. The nurse should know about the bronchoscope anatomy.

Care of the bronchoscope is the responsibility of OT nurses as well as OT technicians, protect it from damage and dust while transporting it from the storage area to the bronchoscopy suite. Pre-procedure check of the systems Plumbing; do the valves work and are channels clear. Mechanical; check the bending section flex the proper amount and in the right direction. Electrical; all power systems functioning. Processor, light source, and monitor. When placing accessories through the working channel, make sure that they are enclosed. If at any time visualization of the accessory is lost, immediately close or resheath the accessory and retract it into the working channel to prevent damage to the patient and bronchoscope [6]. Never force an accessory through the working channel, it can occur perforation. wipe down insertion tube with wet gauze. flush water through the scope. suction at least 10 seconds. After the procedure apply a leak test before submersing fully in water to prevent fluid invasion and flex control lever for several seconds to detect minute leaks. And Drying and put in a highly disinfectant solution (ortho-Phthalaldehyde Solution).

Conclusion

The nurses play a key role in the operating room as well as the hospital, they should be technically competent in handling and assisting the bronchoscopy procedure. The nurses should aware of the anatomy and physiology of the respiratory tract and bronchoscope. Nurses should aware of complications and management of complications in operation theatre and ICU. This article will give knowledge about the handling, care, and complication of a bronchoscope. The majority of complications, as expected, occur in patients with high levels of comorbid disease undergoing more extensive therapeutic interventions. Bronchoscopy requires skilled operators and continues to evolve technologically to the advantage of both the physician and the patient. Overall, both rigid and flexible bronchoscopy, are safe and effective procedures for the diagnosis and treatment of airway and pulmonary pathology. Regular in-service training program to improve technical competency is necessary for Nurses working in the operating room [7].

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