Bronchoscopy: Storz Set Up and Management (Respiratory Therapy)

Site Applicability

St. Paul's Hospital
Mount Saint Joseph Hospital

Practice Level

Respiratory Therapist

Need to Know

Bronchoscopy Team

All bronchoscopy procedures will have at minimum the following complement of staff present:

- Physician (to perform the procedure)
- Registered Nurse (to monitor the patient)
- Respiratory Therapist (to assist with the procedure)

Bronchoscope Tracking Log

A Critical Care Bronchoscope Usage Log will be maintained which includes the date and time of the procedure, bronchoscope serial number, patient identification, location, therapist initials, physician name, and space for comments. The log must be completed for all procedures using a bronchoscope.

Infection Control Precautions

Bronchoscopy is considered an aerosol generating medical procedure (AGMP) and as such, all health care providers involved in the procedure should be wearing complete PPE attire including a fit-tested N95 mask and eye protection.

Laboratory Considerations

Microbiology must be notified prior to beginning the procedure if PJP slides are to be sent**.**
BAL samples are time sensitive therefore must be sent to the lab as soon as possible.

Artificial Airway Sizing

Storz adult bronchoscope (11303 BNX) 5.5 mm outer diameter, working channel 2.1 mm. Outer diameter of scope should be considered relative to inner diameter of artificial airway lumen when determining scope compatibility with artificial airway; in general, an airway size 6.0 mm or greater should be used with a 5.5 mm scope.

The presence of the scope in the artificial airway may result in significant autoPEEP due to the increased resistance to flow. To minimize the risks associated with this, the PEEP can be set to 0 cm H_2O and the FiO_2 can be increased to maintain oxygenation. Ventilation should be monitored closely,

particularly peak inspiratory pressure, tidal volumes and autoPEEP. It may be appropriate to ventilate the patient via manual resuscitator with PEEP valve set to zero.

Equipment and Supplies

All Patients

- Storz bronchoscopy cart with Storz 8403 video screen with cable
- Storz bronchoscope 11303 BNX (5.5 mm OD; 2.1 mm suction working channel)
- Storz disposable suction valve adaptor (3 lugged) and working channel cap
- Luer or slip tip syringe
- Maxzero Needleless male/female luer valve adaptor (optional)
- Bronchoscopy swivel adaptor with tapered flex tube
- Water soluble lubricant – sterile
- 4 x 4 gauze
- 6-8 x 5 mL ampules of 2% lidocaine
- 500 mL bottle normal saline (room temp)
- 500 mL bottle chilled normal saline (readily accessible)
- Sterile bowl
- 3 x 20 mL luer lock syringes
- Bite block * ***Required for ALL bronch procedures***
- Medication cups & labels
- Permanent marker
- Bath towel (as neck roll)
- Face towel (cover eyes)
- Enzymatic detergent kit for scope pre-clean procedure
- Bottle of sterile water
- 2 x 6’ suction tubing
- 5-in-1 connectors
- Scissors

Supplemental for Non-Intubated Patients

- Lidocaine spray and nozzle tip (12 mg per metered dose)
- 10 mL 2% lidocaine for gargle or nebulization
- Denture cup
- Small volume nebulizer kit
- Oxygen delivery device (i.e., oximask)

Diagnostic and Specimen Sampling Supplies

- Sterile sputum traps
- Sterile specimen containers
- Biopsy forceps (cupped, oval, fenestrated)
- Cytology brush
- Microbiology protected sheath brush
- Sterile wire cutters

- Cytolyte
- Formalin
- 2 x frosted glass specimen slides
- Slide carrier case
- Biohazard bags
- Paper bags

Procedure

Indications

- Abnormal chest x-ray or chest CT
- Unexplained respiratory symptoms such as: persistent cough, hemoptysis, wheezing, hoarseness, noisy breathing, shortness of breath
- Persistent atelectasis
- Bronchial hygiene

Contraindications

- No consent
- NPO less than 8 hours
- Absence of skilled providers proficient in performing and assisting with the procedure
- Poor oxygenation requiring high FiO_2 and/or PEEP

Equipment Preparation

1. Wash hands and don gloves. Ensure all emergency airway safety equipment is present and functional. Ensure patient has bite block installed if OETT present.
2. Fill medication cup with 20 mL of 2% lidocaine and label with medication label. Draw up 1 mL of 2% lidocaine in 20 mL syringe and fill remainder with air. Repeat with a second syringe.
3. Open the room temperature bottle of normal saline and fill sterile bowl halfway. Fill a 20 mL syringe to the 20 mL mark and label. Add saline to a medication cup for use as an instrument rinse between sampling attempts.
4. Remove the bronchoscope from the sterile container and remove the caps from each of the channels. The sterilization caps are non-disposable and should be returned with the soiled scope in the sterilization basket.
5. Attach the Storz disposable suction valve and channel plug to the scope. Ensure channel plug is closed.
6. Apply a small drop of anti-fog solution to the tip of the scope. This is MANDATORY for Storz scopes.
7. Plug 8430ZX into electrical outlet. If no outlet, internal battery will last approximately 2 hours if fully charged.
8. Direct the scope towards a white object and press and hold the white balance button (middle button on the 11303BNX bronchoscope until white balance is complete. Observe the monitor for confirmation that white balance is complete. A secondary method is to press and hold the white balance button on menu level 3 of the 8403ZX view screen. NOTE: The Storz scopes have

a non-stick coating; therefore, the use of a lubricant is not required when inserting the scope through an artificial airway.

Patient Preparation

1. For non-intubated patients, have patient gargle with 10 mL of 2% lidocaine for 5-10 seconds, immediately followed by 9 sprays of lidocaine spray to the back of the oropharynx. If patient is unable to gargle, then administer via small volume nebulizer.
2. Pre-oxygenate with NP 5 L/min or mask 10 L/min just prior to beginning the procedure. Have the patient position themselves supine or low-Fowlers.
3. Insert bite-block into patient mouth. Attach bronchoscopy swivel adaptor with tapered flex tube to the patient wye at the end of the circuit (artificial airway patients only).

Bronchoscopy Procedure

1. Verify with RN that baseline vital signs are documented, and appropriate sedation has been given.
2. Activate the scope suction to the maximum available as per regular suction regulator. Hand the scope to the physician performing the procedure. Always support the artificial airway during insertion of the scope.
3. As directed by the physician, assist with installation of lidocaine for additional topical freezing of the upper airway and tracheobronchial tree. The channel plug needs to be opened for instillation and the needleless adaptor used during instillation.
4. Assist with specimen collection as directed by the physician and in accordance with the Bronchoscopy Specimen Collection Guide.

Scope Pre-Cleaning

1. Power OFF the main power on the 8403ZX and disconnect the scope.
2. Empty any saline remaining in the sterile bowl and refill with sterile water.
3. Using the sponge from the enzymatic detergent kit, wipe the insertion tube from boot to distal end. Immerse the distal end of the scope into enzymatic detergent kit and aspirate the entire contents ~30 seconds; then aspirate sterile water ~10 seconds; and then aspirate air ~10 seconds.
4. Discard suction and biopsy valves and place bronchoscope back into the sterilization bin with SOILED tag indicating the time at which the pre-clean procedure was completed. Complete the Critical Care Bronchoscope Usage Log. The scope must be received by MDRD within 1 hour of the pre-clean completion time.
5. Deliver the scope to MDRD for sterilization. Ensure the scope is received directly by MDRD staff (do not leave unattended).

Specimen Handling

1. Review all specimen requisitions for accuracy and completeness. Pair with labeled specimens. All specimens should be bagged individually in a biohazard bag along with the corresponding requisition.
2. Bronchoscopy specimens should be hand delivered to the Microbiology lab by the Respiratory Therapist or delegate.

Documentation

1. Documentation should be done in Cerner by the physician and the therapist. Documentation must include any abnormal anatomical findings, specimen(s) obtained, and area(s) sampled, as well as any complications or adverse events.
2. Complete the Critical Care Bronchoscope Usage Log.

Related Documents

1. B-00-12-12026 - Bronchoscopy: Olympus

References

1. American Association for Respiratory Care. Clinical Practice Guideline: Bronchoscopy Assisting – 2007 Revision and Update. Respiratory Care 2007: Vol. 52(1): 74-80.
2. Provincial Infection Control Network of British Columbia. Respiratory Infection Outbreak Guidelines for Healthcare Facilities: February 2011. P 19-20.
3. https://respiratorytherapy.providencehealthcare.org/sites/respiratorytherapy.providencehealthcare.org/files/Storz%20C-mac%20FIVE%20Scop%3Bes%20Flexible%20Intubation%20Scopes.pdf

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