



Short Communication

Tracheostomy- a complete guide for pediatric post tracheostomy care

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ABSTRACT

Introduction: Tracheostomy tube care in a pediatric age group is challenging. The systematic approach for tracheostomy care and guidance to the care giver and parents will reduce complications related to tracheostomy. The purpose of this article is to ensure the safety of the infants and children who have tracheostomy tube placed in the neck.

Materials and Methods: The acronym (tracheostomy) was created to teach and train the care giver and nursing staff for better post tracheostomy care. All the aspects of tracheostomy care have been included in this as mentioned below

Tube change-when to change?

Regular cleaning-how to perform?

Airway protection-what is required?

Complication awareness-how to prevent?

Home kit requirement-things to keep ready bedside.

Emergency situations-when to call your doctor?

Oral hygiene- why it is important?

Stoma/skin care-what to look for?

Ties care-too tight or too loose?

Outer & inner tube cleaning-how to perform?

Mucous problems-suctioning tips

Your safety-what all you must know.

Results: The acronym is easy to remember and easy to follow.

Conclusion: A systematic tracheostomy care approach can give better outcomes and reduced complication rate in pediatric age group. It will be benefitted for all the health care professionals, nursing staff and the care givers involved with the children who need tracheostomy care.

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1. Introduction

Tracheostomy is required in children with compromised airway due to various conditions. The tracheostomy is inserted surgically in a tertiary centre, but as it is likely to be in place for many months or years the child will go on to be managed in the local hospital and community setting.¹ Children and infants with tracheostomies have an increased

vulnerability to a range of life threatening complications, and therefore require someone trained in their care with them at all times.² We have created as easy to remember acronym for tracheostomy care which can be followed by the health care professionals, nursing staff and the care giver involved with the children who needs tracheostomy care support.

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2. Materials and Methods

The acronym Tracheostomy was created to teach and train the care giver and nursing staff for better post tracheostomy care. All the aspects of tracheostomy care have been included in this as mentioned below

Tube change-when to change?

Regular cleaning-how to perform?

Airway protection-what is required?

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Home kit requirement-things to keep ready bedside.

Emergency situations-when to call your doctor?

Oral hygiene- why it is important?

Stoma/skin care-what to look for?

Ties care-too tight or too loose?

Outer & inner tube cleaning-how to perform?

Mucous problems-suctioning tips

Your safety-what all you must know.

3. Discussion

3.1. Tube change-when to change?

First tube change should be performed on 7th post-operative day.

Second tube change can be done before discharging the child from the hospital.

Regular interval between tube change should be 4 to 6 weeks.

It can be performed as a planned or emergency procedure if the tube is blocked/dislodged/soiled/broken.³

1. Keep the tube change kit ready before performing the procedure.
2. Always keep same size tube & one down size tube ready.
3. Always check the cuff for any leak or damage.
4. Lubricate the tube before insertion.
5. Tube change should be done quickly.
6. Never perform this procedure alone. Arrange the help before performing tube change.
7. Neck extension gives better exposure of tracheostomy site.
8. If unable to insert the tube, keep towel roll under the shoulder to extend the neck.⁴

3.2. Regular cleaning-how to perform?

1. Wash your hands before changing the tube.
2. Clean your tracheostomy equipment as directed.
3. Clean your stoma site as directed.
4. Do not use hydrogen peroxide solution near stoma site.⁵

3.3. Airway protection-what is required?

1. You can protect your child's lower airway by covering the tracheostomy tube opening via one of the following
 - a. -use wet gauze piece to cover the tracheostomy tube opening
 - b. -use HME (Heat Moisture Exchanger) Filters
 - c. -use trach collar
 - d. -use trach cover
2. Deep breathing exercises and coughing exercises 10 times in an hour to prevent lung infections.⁶

3.4. Complication awareness-how to prevent?

1. Hand hygiene.
2. Regular cleaning of tube and stoma site to prevent infections.
3. Avoid water entering in your child's tube while bathing or showering.
4. Keep your child away from smoke, dust, pollutants.
5. Do not allow them to swim.
6. Use HME filters.
7. Plenty of fluids for drinking to keep the secretion thin & loose.
8. Regular suctioning to prevent tube block.
9. Always keep the emergency tracheostomy kit handy or bedside.

3.5. Home kit requirement-things to keep ready bedside.

1. Appropriate size AMBU bang & AMBU Mask.
2. Tracheostomy tube- same size & one size smaller (arrange obturator for both if possible).
3. Adequate size suction catheter.
4. Suction apparatus- electric & foot operated.
5. Oxygen- cylinder & concentrator.
6. Pulse oximeter.
7. Humid-vent
8. Nebulizer
9. Hand care gloves
10. 100 ml NS
11. Water for injection
12. Water soluble lubricant
13. Empty 10cc syringe
14. Extra pair of ties
15. Hydrogen peroxide solution
16. Pack of gauze pieces
17. Hand sanitizer
18. Brush for cleaning
19. Q tips or cotton applicators
20. Scissors
21. Roller towel or blanket.⁷

3.6. Emergency situations-when to call your child's doctor?

1. If child develops breathing difficulties in spite of suctioning/cleaning/tube changing
2. If child gets fresh blood in suction catheter while suctioning or bleeding stoma
3. If you notice yellowish/ greenish or foul smell secretions
4. If child complains of severe pain while breathing or swallowing
5. If you can-not insert the new tracheostomy tube in spite of smaller size trial
6. If you notice liquids or food particles in suction catheter while suctioning
7. If child develops high grade fever or fast breathing
8. If your child has troubled breathing and lips turning blue.⁸

3.7. Oral hygiene- why it is important?

1. Good oral hygiene is important to prevent infection
2. Brush your child's teeth twice a day
3. Use separate oral suction to prevent cross contamination
4. Use a mouth wash and rinse the mouth twice daily after meals.

3.8. Stoma/skin care-what to look for?

1. Check skin around the stoma for signs of infection- redness, bumps, thick crusting, foul smell discharge, excessive secretions
2. Check for skin breakdown due to flange pressure
3. Keep the stoma dry and clean
4. Always wash your hands before cleaning stoma site or tube
5. Clean around stoma & flange with Q tips soaked in normal saline.
6. Clean with betadine solution followed by normal saline soaked gauze piece
7. Apply new dressing every day or change as required.⁹

3.9. Ties care-too tight or too loose?

1. Can be changed once
2. In a week or as soon as it gets soiled.
3. Do not use Velcro ties as it can come off accidentally so always use cotton double ties for your child's tube
4. Do not change immediately after food as slight movement of tube can cause gag reflex which can induce vomiting.
5. Ask for the help before changing the ties
6. Ties should not be too tight or too loose
7. Keep one finger between ties and neck skin to get adequate fitting while tying

3.10. Outer & inner tube cleaning-how to perform?

1. Inner cannula can be removed & clean with brush and water.
2. If mucous secretions are dried up then soak the inner cannula in diluted hydrogen peroxide solution & brush it off.
3. In case of excessive secretion, clean the inner cannula three times in a day to prevent infections.
4. Outer cannula (tube) cleaning can be done monthly during the tube change.
5. Tube without inner cannula needs frequent cleaning.
6. Always ask for the help before tube change.
7. Tube should be cleaned under running tap water followed by soakage for 15-20 minutes in diluted hydrogen peroxide solution. Clean the tube with small brush or pipe cleaner and keep it for drying. Once dried, tube can be kept in paper bag for further usage. Bivona tube can be used up to 5 times¹⁰

3.11. Mucous problems-suctioning tips

1. Whenever needed
2. Perform quick suctioning -o2 desaturation/abnormal breath sounds/copious secretions/ increased work of breathing/audible secretions
3. Routinely done -after waking up
 - Before feeding
 - After nebulization or chest therapy
 - When excessive phlegm builds up
4. Do not perform suction while inserting the catheter
5. Preoxygenate your child before and after suctioning.
6. Use appropriate size suction catheter
7. Each suction session should be performed in less than 10 seconds
8. Wait for 30 seconds in between suction sessions.
9. Only three attempts at a time
10. Wait for 5 -10 minutes if further suctioning required.
11. Ask your child to take deep breath before suctioning.
12. Keep suction pressure to less than 120mmhg for open system suctioning.
13. To keep the secretion thin- ask your child to drink plenty of water
 - Use a humidifier in your child's room
 - Nebulization once in two days
 - Use HME/ Trach collar to keep the air moist
14. Your child will need more humidity- during winter season
 - When air is dry in the room
 - When secretions are thick, dry or crusty¹¹

3.12. Your child's safety-what all you must know.

1. If your child has trouble breathing-do not get panic
2. Tell your child to Take deep breath & cough
3. Remove your child's inner cannula

4. Try to clean outer tube with suctioning
5. Use soda bicarb to loosen the secretion and perform suction
6. Still trouble then change the tracheostomy tube
7. Ask for help urgently
8. Always make sure that tube should be mucous free.
9. Always keep tracheostomy kit with you
10. Always cover tracheostomy tube with moist gauze or HME to prevent infection
11. Seek medical advice if you have any doubt¹²

4. Conclusion

A systematic tracheostomy care approach can give better outcomes and reduced complication rate in pediatric age group. It will be benefitted for all the health care professionals, nursing staff and the care givers involved with the children who need tracheostomy care.

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6. Conflict of Interest

None.

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