Communication and Swallowing post Tracheostomy.

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Role of SLT
1. Management of communication needs.
3. Working with the multidisciplinary team to facilitate weaning.

Impact of Tracheostomy
Redirection of Airflow:
- Voice: Dysphonia/aphonia
- Swallow impairment
- Difficulty with secretion management
- Sensory impairments

COMMUNICATION

Facilitating Communication
- Ideally, preserve/facilitate oral communication where feasible.
- Allow patient participation in decision making/treatment planning
- Improve overall quality of life.

Normal Speech
- Breath - expiration
- Vocal Cords
- Articulation
Effects of tracheostomy on voice

• Underlying diagnosis
• Majority of air no longer directed through larynx so unable to produce voice.
• (Especially so with large tubes and/or when the cuff is inflated)

Non-Oral Communication Options

• Call system
• Yes/no questions
• Mouthing (reduced rate, key words, over articulation)
• Writing
• "Low tech" communication aid (pictures, alphabet chart)
• "High tech" aids e.g. GOTALK, Light-writer, IPAD
• Electrolarynx?

Be aware of patients who may have a broader communication, language or speech impairment e.g. Left CVA, Parkinson’s Disease

Speaking Valves

Facilitate communication by redirecting airflow through vocal folds.

Passy Muir Clear Valve

• Low profile
• Low resistance
• Tie for security

Passy Muir Aqua Valve

For ventilated patients

Benefits of Speaking Valves

• Facilitate improved voice production & oral communication
• Positive effects on swallow and secretion management
• Restores physiological PEEP
• Expedites weaning/decannulation time
• Improves smell/taste
Contraindications for Speaking Valves

- Less than 48 hours post tracheostomy.
- Inability to tolerate full cuff deflation.
- Upper airway obstruction, tracheal oedema or stenosis.
- Medical instability including end-stage pulmonary disease.
- Laryngectomy (no vocal cords).
- Severe aspiration/copious tenacious secretions.
- Anarthria/severe dysarthria.
- Unconscious/comatose patients.

Important!!!!

Never place a speaking valve when the cuff is INFLATED!!!

The patient will not be able to breathe out!

Safe Cuff Deflation (for cuffed tubes)

- Medical clearance by physician/surgeon/senior nursing staff is mandatory before first attempt at cuff deflation.
- Explain process to patient
- Oral and tracheal suction prior to deflation
- Tracheal suction as cuff is deflated
- Slow deflation
- May be "leak speech" following deflation

Fitting the speaking valve

- Attach the SV to the hub of the tracheostomy tube
- Monitor the patient’s physiological and clinical response to the use of the SV for indications of intolerance. (These include increased work for breathing, fatigue, decreasing oxygen saturation levels, a change in skin colour, excessive coughing)
- If valve poorly tolerated, remove and re-inflate cuff
- Gradually increase tolerance of the speaking valve
- SLT will assess voice quality/communication and see for therapy as appropriate.

Care of Speaking Valve

- SV to be worn as tolerated, especially when talking and swallowing. (Gradual build-up of tolerance)
- SV to be removed if having breathing difficulties.
- SV to be removed when sleeping (?)
- Should be cleaned daily in mild soapy water. Rinse thoroughly in warm (not hot) and let air dry.
- Single patient use only.
- Lifespan of approx. 2 months.

Ventilated Patients

Consider:
- Overall medical status
- Level of alertness
- Cognitive status
- Mode of ventilation (PS, VS, CPAP)
- Levels of ventilatory support: PEEP (<10), PS (<15), FIO$_2$ (<0.4), RR (<30)
Placement of speaking valve for ventilated patients

Troubleshooting

- Breathing difficulties (consider patient position, upper airway obstruction, cuff deflation, secretions, anxiety)
- Coughing (common++, consider secretions, anxiety, changed sensation)
- Weak voice (consider vocal cord function, myopathy, reduced airflow)
- Reduced tolerance of speaking valve
- Anxiety

SWALLOWING

Normal Swallow

Oral Phase

Pharyngeal Phase

Esophageal Phase

Impact of Tracheostomy on Swallowing

- Patients may be on an oral diet with a t-tube in situ.
- Potential for swallowing difficulties may be heightened due to mechanical and physiological changes to the swallowing process.
- Many patients will have an underlying condition predisposing them to a swallow impairment.

Tracheostomy and swallow

- Aspiration in 40-87% of patients
- High incidence of silent aspiration
- Effects of tracheostomy may include
  - Reduced laryngeal elevation
  - Obstruction of oesophagus
  - Disuse muscle atrophy
  - Reduced cough reflex
  - Reduced subglottic pressure
  - Desensitisation of larynx
  - Persistent effects of ET intubation
  (Goldsmith 2000)
Myth of the Inflated Cuff

- Does not prevent aspiration!
- Bolus already aspirated
- Incomplete cuff seal especially on liquids
- Aspirated material may pool above the cuff and be aspirated on cuff deflation.
- Bacterial colonisation may occur

Clinical Signs of Dysphagia

The following signs may be suggestive of dysphagia:

- Coughing during or after eating/drinking
- Wet, gurgly voice
- Effortful swallow
- Repeated swallows required to clear a single bolus
- Food/fluid stained secretions seen on suctioning
- Repeated, unexplained RTIs

Aspiration

Food or fluid enters the airway/lungs

- Acute signs
  - Coughing
  - Throat clearing
  - Gurgly/wet voice
  - Changes in breathing
  - Gagging

- Chronic signs
  - Weight loss
  - Dehydration
  - Temperature of unknown origin
  - Recurrent Pneumonia (especially right sided)
  - Refusal to eat

Remember, aspiration can be silent ⇒ patient doesn’t cough when aspirating

Criteria for Dysphagia Assessment

- Patient must be alert.
- Suction facilities available.
- Patients should have an uncuffed tube or be able to tolerate cuff deflation.
- Patients can tolerate speaking valve for short periods

SLT Dysphagia Assessment

- Medical history
- Bedside clinical dysphagia evaluation: oromotor examination, food trials with palpation, cervical auscultation and/or pulse oximetry.
- Modified Evans Blue Dye Test: High level of false negatives
- Videofluoroscopy – remains gold standard.
- Fibreoptic Endoscopic Examination of Swallow

Videofluoroscopy

No Passy-Muir Valve: Aspiration
With Passy-Muir valve: no aspiration
Speaking valves as swallowing valves

- Restore sensation
- Restore taste and smell
- Restore subglottic pressure
- Improve cough
- Closed valves only

Strategies to Minimize Aspiration & Monitor Dysphagia

- Modified diet if recommended.
- Feed only when sitting upright.
- Facilitate airflow through larynx through use of a speaking valve
- Reduced bolus size
- Reduced rate of intake
- Reduced amounts to allow for fatigue effect.
- Safe swallow guidelines as per swallow chart.
- Continue to monitor for acute/chronic signs of aspiration.

If swallowed material detected through t-tube on suctioning, inform team (especially SLT).

Questions?