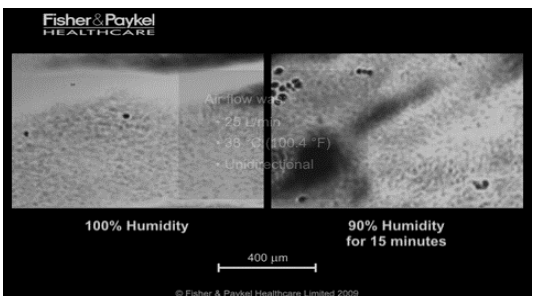
Humidification

- When we talk about humidification we talk about the moisture content of the air.
- All patients with a tracheostomy tube require humidification of inspired gases in order to:

1. To prevent drying of pulmonary secretions.
2. To preserve mucociliary function

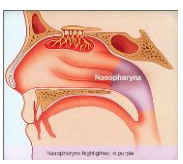


We know that the lower airways function best when inspired gases are fully saturated with water vapor and warmed to body temperature.

During normal breathing, inspired air is warmed, filtered and moistened by the nose throat and mouth.

In patients who have a tracheostomy or laryngectomy the humidifying functions are bypassed.

The air they inspire will be cold and dry.



- By putting the correct humidification in place you restore things to as close to normal as possible for the patient.
- Getting the right humidification helps with,

- Clearance of secretions
- Maintaining patency of airway
- Prevents mucus plugging
- Patient comfort

Clinical signs and symptoms of inadequate airway humidification.

- ***Atelectasis/ pneumonia***
- ***Dry, non-productive cough***
- ***Increased airway resistance***
- ***Increased incidence of infection***
- ***Increased work of breathing***
- ***Patient complaint of substernal pain and airway dryness***
- ***Thick, dehydrated and/or encrusted secretions***

- The type of humidification selected is determined by the patients condition and needs.
- The method of humidification can be altered as the patients condition changes.

Just remember;

- All Tracheostomy and Laryngectomy patients must have some form of artificial humidification in place - 24 hours a day.
- Only one method of humidification should be used at any one time.

Types of humidification

Active – Adding heat or water
- Airvo heated humidifier
- Nebuliser

Passive – To recycle exhaled heat and humidity
- Heat moisture exchange filters
- Soft shield humidification bibs

Heated Humidification

Active humidification-

The device produces heated water vapour and allows us to deliver fully saturated gas at core temperature

37 degrees

We recommend using heated humidification for;

- Patients with a newly formed Tracheostomies
- Dehydrated Patients
- Patients that require oxygen
- Patients with tenacious secretions

heat moisture exchange filter

Swedish nose

Provox filter

Laryngectomy tube

Provox base plate

Heat moisture exchange filter.

- Fits on to the end of the tracheostomy tube- *the fibres use the patients expelled air to heat and moisten the next breath of inspired air.*
- Not suitable for patients with thick, copious or bloody secretions
- Ideal for use in patients as they become more independent
- For patients who are adequately hydrated

When in place you must

- Check regularly for tube patency
- Educate patient on removal of device to expel secretions
- Dispose of when soiled or every 24hrs

Soft shield humidification bib

- Comfortable cotton bib
- Suitable for patients with loose secretions
- Patients with copious secretions where there is a risk of tube occlusion.
- Easy to use
- Protect and cover the laryngectomy site
- Discard bibs when soiled, at home bibs can be handwashed.

Nebulisation

- Active humidification-
- Cold air
- Produces a mist highly saturated with moisture droplets.
- The moisture content is greater than heated humidification- can penetrate further down the Respiratory Tree.
- Will thin secretions and promote clearing.
- Soothing irritable airways.

Speaking valve

- Passy-muir speaking valve (PMV)
- NOT a form of humidification
- must be worn with either a BIB or tracheostomy mask.

Green Swedish nose

- Oxygen delivery inlet
- Suitable for mobile patients who have good control over secretions but require 02.
- Mobilising with physio
- Attending Xray dept.
- 5L O2
- Dispose of when soiled

Patient assessment

- Frequency of suction/changing the inner canula.
- Observing the colour and consistency of secretions.
- Evidence of airflow via tracheostomy.
- Observe respiratory rate.
- Observe cough.
- Observe oxygen saturations, requirement for supplementary oxygen.
- Maintaining hydration

Dehydrated patient is at greater risk of developing problems due to thick dry secretions.
Mobilising will help with the clearance of secretions as well as systemic hydration.

Documentation

- EPR
- iView
- Lines and devices
- Airway management

Humidification Y/N
Heated
Saline Nebuliser
Sweedish nose
Bib
Inner Cannula Patent Y/N
<25% Occluded
25-75% Occluded
>75% Occluded
Changed Y/N
%O2 in use or Room Air (RA)
% Sa02
Self Expectorating Y/N
Suctioned Y/N
Minimal (1catheter)
Moderate(2 catheter)
Copious (3catheters)
Colour: Clear
White
Green
Brown
BloodStained
Viscosity: Loose
Frothy
Tenacious

All tracheostomy patients must have some form of artificial humidification in place.

References

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