Maintaining pulmonary health after total laryngectomy

Atos Medical series of educational events
New research on post-laryngectomy issues
89% of patients report cleaning out mucus from the stoma or HME several times a day.

Pulmonary issues can be improved by managing impacting factors such as lifestyle and co-morbidities as well as compliant HME use.

The benefits of HME use as a rehabilitation method are clear, but clinical evidence shows that compliance rates are low.

There is a clear need to address pulmonary issues by improving HME compliance to improve laryngectomized patients’ quality of life.

Source: Red Associates, 2019
Simon estimated he needs to remove his HME to cough 15 times a day. At the end of the conversation he said, “it must be double what I said earlier - at least 30 times, I hadn’t realized.”


Contents:

- Pulmonary health in laryngectomized patients
- Factors impacting pulmonary health
- HME use to manage pulmonary issues
- What can be done to improve pulmonary health
Pulmonary health in laryngectomized patients

Quantitative patient study confirmed that Simon is one out of many who struggle with mucus

Source: Red Associates, 2019

- 89% of patients have cleaned out mucus from the stoma or HME several times a day.
- 71% have had to change HMEs during the day because of mucus.
- 52% of patients have had their clothes soiled by mucus.
- 52% have seen their adhesive come loose because of mucus.

n=1734

Source: Red Associates, 2019
Despite having highest degree of trust in their clinician for advice, 50-60% of patients report not speaking about their issues.

What have you talked to your clinician about the past year?

- How often I experience coughing throughout the day:
  - Yes: 34%
  - No: 55%
  - Don't know: 11%

- How often I have mucus flareups throughout the day:
  - Yes: 40%
  - No: 51%
  - Don't know: 10%

Source: Red Associates, 2019
Factors impacting pulmonary health

Pulmonary health is influenced by patients’ overall health, co-morbidities, and a consequence of being neck breathers

Overall health

- Median age at diagnosis: 65 years old
- 56% current smoker at time of diagnosis
- 81.6% of diagnosed cases associated with a combination of smoking and alcohol

Co-morbidities

- Compromised lung health due to pulmonary co-morbidities, such as COPD (81%), asthma
- Dyspnea both with and without exercise

Consequence of being a neck breather

- Anatomy post laryngectomy, bypassing the upper airways, affecting:
  - Humidification - essential to keep cilia working properly
  - Breathing resistance - essential for gas exchange, lung expansion, and to prevent alveolar collapse
  - Filtration - essential for preventing foreign bodies from entering the lungs

Source: Hashibe et al., 2009; Sharp et al., 2014; Hess et al., 1999; Castro et al., 2018; cancer.gov
HMEs store humidity and heat from the exhaled air, and then release it back into the air that is inhaled. It partially restores the functions lost from removing the upper airways.

1. When exhaling through the stoma, the HME stores humidity and warm air.

2. The foam is treated with calcium chloride to help retain the humidity from exhaled air.

3. Then when inhaling, the humidity and heat that is saved in the HME is released back into the inhaled air.

4. This humid and warm air is returned to the respiratory system and helps the cilia to function more effectively, which is essential for pulmonary health.

A well-functioning HME has high humidification performance, has physiological and comfortable breathing resistance and is easy to speak with.
Clinical evidence reports that wearing an HME both day and night is necessary to significantly improve pulmonary health.

Coughing and forced expectorations significantly decreased after 12 weeks in the group using HME both day and night.

*Source: Bien et al., 2010*

**Reduction of coughs w12 compared to w1**

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<th>HME Day</th>
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**Reduction of forced expectorations w12 compared to w1**

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n=80 HME-naïve laryngectomized patients

*Coughing and forced expectorations significantly decreased after 12 weeks in the group using HME both day and night.*
HME use to manage pulmonary issues

Clinical evidence also shows that compliant HME use significantly decreases pulmonary symptoms already after 2 weeks.

*Significant decrease in pulmonary symptoms already after 2 weeks of compliant HME use

Source: Parilla et al., 2015
What can be done to improve pulmonary health

Despite the significant benefits of using an HME as rehabilitation method, clinical studies show that compliance rates are low

Patient compliance rate

Source: Brook et al., 2013; Ackerstaff et al., 1996; Bien et al., 2010; Herranz et al., 2013

There is a clear need to address pulmonary issues by improving HME compliance to improve laryngectomized patients’ quality of life
References:


Herranz J, Espino MA, Morado CO. Pulmonary rehabilitation after total laryngectomy: a randomized cross-over clinical trial comparing two different heat and moisture exchangers (HMEs). Eur Arch Otorhinolaryngol. 2013;270(9):2479-84.


Atos Medical
series of educational events

This material is part of a series of Educational Events to present new research on post-laryngectomy issues. The series also include:

Maintaining peristomal skin health after total laryngectomy
Learn more about the mechanics of skin irritation and how it impacts the health of laryngectomized patients

Living an active life after total laryngectomy
How does the laryngectomy impact patients’ activity level and social life? Learn more about the positive impact of being active

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