Introduction

In 2012 I read an inspirational article by A Armstrong which described a technique, first developed in Ottawa in Canada, where they modified a resuscitation bag with a one-way valve. This meant patients with diaphragmatic weakness could achieve lung inflation. Ms Armstrong and her Team in the North of England Respiratory Service developed a Lung Volume Recruitment Bag suitable for patients with Motor Neurone Disease (MND). [1]

North of Scotland Study Summary

The Clinical Specialist for MND found it difficult to source Cough Assist Machines for her patients so it was decided to offer breath stacking (BS) as a treatment option. In 2012 I read an inspirational article by A Armstrong which described a technique, first developed in Ottawa in Canada, where they modified a resuscitation bag with a one-way valve. This meant patients with diaphragmatic weakness could achieve lung inflation. Ms Armstrong and her Team in the North of England Respiratory Service developed a Lung Volume Recruitment Bag suitable for patients with Motor Neurone Disease (MND). [1]

Breath Stacking Pathway MND

**Inclusion Criteria**

- Reduced FVC
- Respiratory symptoms (see Patient LVR Assessment)
- Difficulty clearing secretions
- Patient describes not being able to get a full breath
- Patient is motivated to try technique

**Exclusion Criteria**

- Severe cognitive impairment
- Dementia diagnosis
- Poor upper limb function plus no carer available
- Inability to protect airway
- Contra Indicators present (see Patient Leaflet)
- Person not suitable for Breath Stacking
- Consider saliva management and/or cough assist machine

**Patient LVR Assessment Form**

- Discuss with patient and carer
- Offer NHS Grampian Breath Stacking leaflet for Patients
- Offer “Understanding How MND Might Affect Your Breathing” from MNDA

2013-2016 Update

Recent research by Cleary et al with MND patients demonstrated breath stacking can increase the strength of the person’s cough for up to 30 minutes after completing the technique. [2]

Rafiq et al completed a randomised trial where they compared BS using a Lung Volume Recruitment Bag (LVR) (21 patients) and use of a mechanical insufflator-exsufflator or cough assist machine (19 patients). They recommend further research, but in the meantime, that breathstacking was a low-cost, first-line intervention for volume recruitment and cough augmentation in patients with ALS. [3]

The 2016 UK NICE Guidelines for MND have recommended unassisted breath stacking as a first line treatment for people with an ineffective cough. And the use of a Lung Volume Recruitment Bag for people with an ineffective cough or with bulbar dysfunction. [4]

Training and Resource Packages, a Clinical Pathway and a Patient Assessment/Feedback Form have been developed. This complete package aims to encourage all staff working with MND patients to consider breath stacking using a Lung Volume Recruitment Bag as a treatment medium.

References