Assessment of the Clinical Value of an Oscillating Positive Expiratory Pressure (OPEP) device and Active Cycle of Breathing (ACBT) for Chronic Obstructive Pulmonary Disease (COPD) Post Exacerbation: a 12 Week Prospective, Randomized Study using the Leicester Cough Questionnaire (LCQ) and COPD Assessment Test (CAT)

C. Bridges[1], J. Suggett[2], & K. Lewis[3,4]

[1]Cardiff and Vale UHB, Cardiff, UK [2]Trudell Medical International, London, Ontario, Canada [3]Hywel Dda UHB, Carmarthen, UK [4]TriTech Institute, Hywel Dda UHB, Wales

RATIONALE

Despite multiple drug treatment options available, many people with COPD still suffer from poor quality of life, often as a result of excess mucus. This is further exaggerated as a result of exacerbations. This study assessed people with COPD suffering with mucus hypersecretion, post exacerbation in Wales, UK, following treatment with a handheld, OPEP device or the ACBT breathing technique.

METHODS

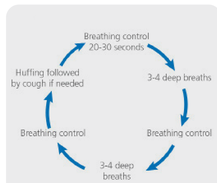
Inclusion criteria:

- People with COPD aged 40-90 years old
- Chronic Bronchitis (CB) phenotype
- Gold E
- FEV1 / FVC Ratio <0.70
- >10 pack year history
- Regular sputum producers
- >15 CAT
- On guideline pharmacological therapy
- Exacerbation treated with antibiotics or steroids

Exclusion criteria:

- Patients with life expectancy < 12 months
- Unstable cardiac conditions
- OPEP contraindications

The *Aerobika*® OPEP device



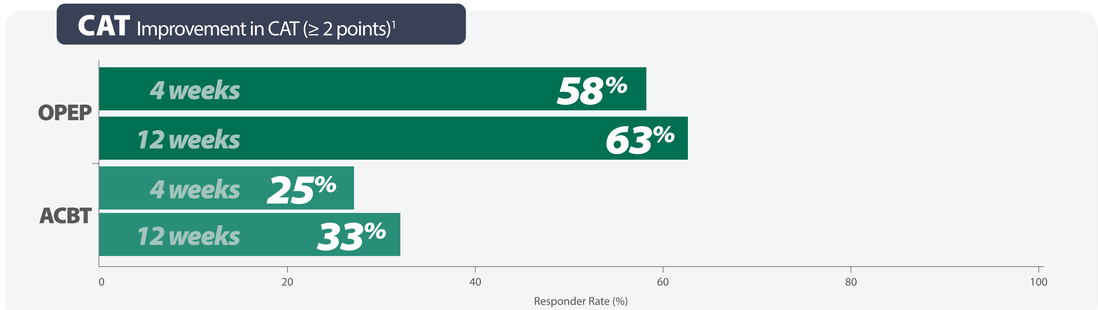
The ACBT breathing technique

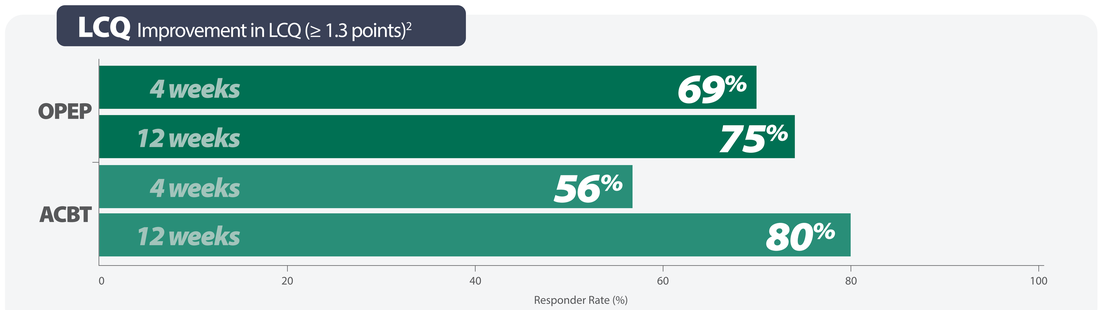
All standard of care COPD therapy was maintained during the study. Participants were randomized to either OPEP (Aerobika® OPEP, Trudell Medical International) or ACBT, with LCQ and CAT data collected at 0, 4, and 12 weeks. Responder rates - % of patients having MCID (minimum clinically important difference) improvement - were assessed for each.

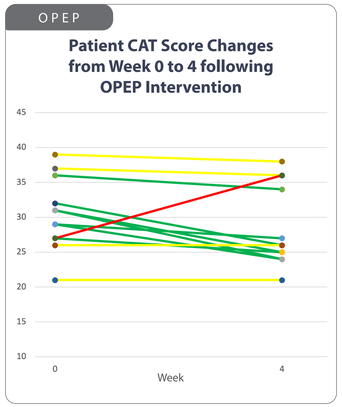
RESULTS

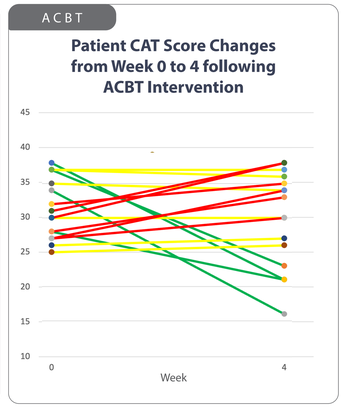
29 patients (11 male) were included in the study. All participants were assessed at 4 weeks and 18 participants at 12 weeks. Responder rates for the two interventions are reported in the table.

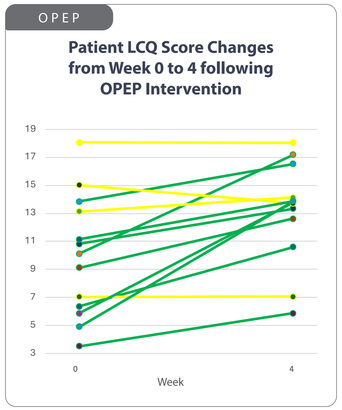
		Responder Rates (%)	
		OPEP	ACBT
CAT	4 Weeks	58	25
	12 Weeks	63	33
LCQ	4 Weeks	69	56
	12 Weeks	75	80

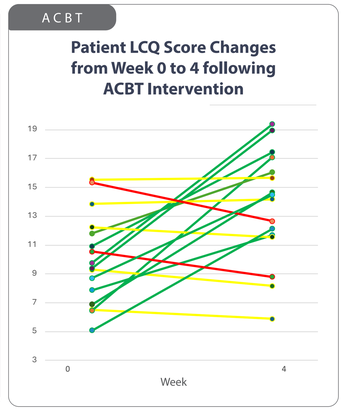












CONCLUSIONS

For COPD patients being discharged from hospital following exacerbation, the first 30 days recovery period is critical. Both interventions were associated with clinically important improvements in cough and quality of life for a number of patients, with **OPEP having responder rates of 69% (LCQ) and 58% (CAT) respectively and ACBT 56% and 25%.**

Such improvements were generally maintained or improved further after 12 weeks. Notwithstanding the relatively small sample size, **the results of this study provide evidence to support the potential use of the interventions in CB COPD patients.**

TRUDELL MEDICAL INTERNATIONAL

GIG CYMRU NHS WALES Bwrdd Iechyd Prifysgol Caerdydd a'r Fro Cardiff and Vale University Health Board

GIG CYMRU NHS WALES Bwrdd Iechyd Prifysgol Hywel Dda University Health Board

TRITECH Sefydliad | Institute & Innovation

RESPIRATORY INNOVATION WALES

Swansea University Prifysgol Abertawe Medical School Yr Ysgol Feddygaeth

DIGITAL VERSION

American Thoracic Society Conference
May 17 - 22, 2024. Modified Version: June 24, 2024.

[1] Kon SS, Canavan JL, Jones SE, Nolan CM, Clark AL, Dickson MJ, Haselden BM, Polkey MI, Man WD. Minimum clinically important difference for the COPD Assessment Test: a prospective analysis. Lancet Respir Med. 2014 Mar;2(3):195-203. doi: 10.1016/S2213-2600(14)70001-3. [2] Nguyen AM, et al. Leicester Cough Questionnaire validation and clinically important thresholds for change in refractory or unexplained chronic cough. Ther Adv Respir Dis. 2022 Jan-Dec;16:17534666221098737. doi: 10.1177/17534666221098737. PMID: 35614878; PMCID: PMC9149026. [3] Bridges C, Graham-Wollard L, Morris H, et al SS6-A feasibility randomised control trial (RCT) of OPEP verses active cycle of breathing technique (ACBT) in people with chronic obstructive pulmonary disease (COPD)Thorax 2020;75:A43-A44 MD-0574-O124.