Management of Breathless patient in palliative care

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OVERVIEW

- INTRODUCTION
- CAUSES
- PATHOPHYSIOLOGY
- MANAGEMENT
- GUIDELINES

BREATI

- American Thoracic Society defines shortness of breath as "a subjective experience of breathing discomfort that consists of qualitatively distinct sensations that vary in intensity."
- often intermittent occurring in episodes
- present in 70% of patients with cancer in the last few weeks and 25% in last week of life

Causes

DIRECTLY RELATED TO CANCER	INDIRECTLY RELATED TO CANCER
Pleural tumour	Cachexia
Pericardial effusion	Anaemia
SVC Syndrome	Electrolyte abnormalities
Tracheal-oesophageal fistula	Pulmonary embolus
Chest-wall invasion	Paraneoplastic syndromes
	Ascites

RELATED TO CANCER THERAPY	UNRELATED TO CANCER
Surgery	COPD
Radiation pneumonitis	Asthma
Chemotherapy-induced pulmonary fibrosis	Congestive heart failure
Chemotherapy-induced cardiomyopathy	Cardiac ischemia
	Arrhythmias
	Obesity Aspiration Pulmonary vascular disease Pneumothorax

PATHOPHYSIOLOGY

1.Neuro-mechanical dissociation (mismatch between what the brain desire for respiration and sensory feedback)

2. Increased work of breathing

3.Chemical (Hypercapnia & Hypoxaemia)

BREATHLESSNESS CYCLE

Assessment

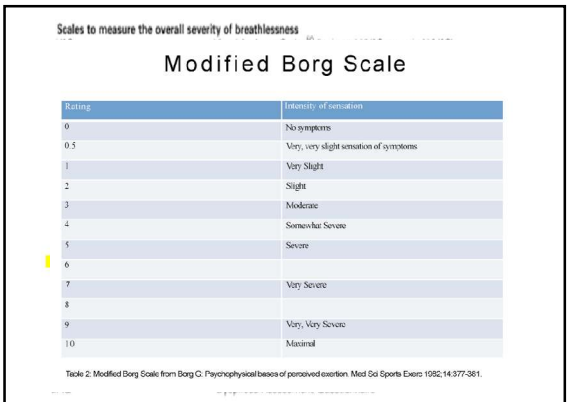
- Gold standard and most reliable –Patients self report
- O2 saturation, ABG, RR do not measure dyspnoea always

Palliative Medicine 2007; **21**: 177–191

Which measurement scales should we use to measure breathlessness in palliative care? A systematic review

Saskie Dorman Forest Holme, Poole Hospital NHS Trust, Poole, **Anthony Byrne** Marie Curie Hospice, Penarth and **Adrian Edwards** Department of General Practice, Cardiff University, Cardiff

Introduction: There is no universally accepted measurement scale to assess breathlessness in adult palliative care patients. This significantly hampers clinical practice and research into effective interventions. The aim is to systematically identify and appraise breathlessness measurement scales, which are validated for use in palliative care or which show potential for use. **Methods**: We undertook systematic searches of electronic databases (Cochrane databases 2005, MEDLINE 1966–2005, OLDMEDLINE 1950–1965, EMBASE 1980–2006, PsycINFO 1872–2005, AMED 1985–2005, CINAHL 1982–2005, SIGLE 1980–2006) with follow-up searches (reference lists of included papers, hand-searches of relevant journals). The basic search strategy was 'breathlessness (etc.) AND measurement (scales, validation etc.) AND palliative care/cardiac failure/respiratory disease/neoplasm etc.', modified for each database, without language restriction. Patient-based scales with evaluations of at least two psychometric characteristics were included. Exercise-based tests were excluded. Scales were appraised with particular emphasis on construct validity and responsiveness. **Results**: We identified 29 scales: six to measure breathlessness severity, four to assess breathlessness descriptions, and 19 to measure functional impact of breathlessness. **Severity**: The Numeric Rating Scale (NRS) and modified Borg Scale have been evaluated in COPD (the NRS has also been evaluated in cancer). Both require further assessment of responsiveness and test–retest reliability over time intervals relevant to palliative care. Visual Analogue Scales have also been evaluated, but require larger sample sizes than NRS for evidence of intervention effectiveness. **Descriptions**: The Japanese Cancer Dyspnoea Scale (CDS) has been evaluated in patients with cancer, but requires further assessment of construct validity and responsiveness. **Functional impact**: The Chronic Respiratory Questionnaire dyspnoea subscale (CRQ-D) has been evaluated in chronic lung diseases and heart failure; the MND Respiratory Scale is similar. CRQ-D has face and construct validity, test–retest reliability and responsiveness, and shows promise for palliative care. **Conclusion**: The NRS, modified Borg, CRQ-D and CDS appear most suitable for use in palliative care, but further evaluation is required before adopting any scale as standard. This review has been registered with the Cochrane collaboration and will be published and updated as a Cochrane review. *Palliative Medicine* 2007; **21**: 177–191



Scales to measure the overall severity of breathlessness

Modified Borg Scale

Rating	Intensity of sensation
0	No symptoms
0.5	Very, very slight sensation of symptoms
1	Very Slight
2	Slight
3	Moderate
4	Somewhat Severe
5	Severe
6	
7	Very Severe
8	
9	Very, Very Severe
10	Maximal

Table 2: Modified Borg Scale from Borg G. Psychophysical bases of perceived exertion. Med Sci Sports Exerc 1982;14:377-381.

INVESTIGATIONS

- A general rule for palliative care patients is that a diagnostic test should be performed only if it will yield information that will affect management.
- Pulse oximetry
- Complete blood counts
- Chest radiograph

MANAGEMENT

- Therapeutic goal is to relieve patient's sense of the effort of breathing .
- History and physical examination are essential elements
- Therapeutic and diagnostic intervention should be guided by
  - Patient's goal and extent/prognosis of

American Thoracic Society Documents

An Official American Thoracic Society Clinical Policy Statement: Palliative Care for Patients with Respiratory Diseases and Critical Illnesses

Paul N. Lanken, Peter B. Terry, Horace M. DeLisser, Bonnie F. Fahy, John Hansen-Flaschen, John E. Heffner, Mitchell Levy, Richard A. Mularski, Molly L. Osborne, Thomas J. Prendergast, Graeme Rocker, William J. Sibbald†, Benjamin Wilford, and James R. Yankaskas, on behalf of the ATS End-of-Life Care Task Force

This Official Statement of the American Thoracic Society (ATS) was adopted by the ATS Board of Directors, March 2007

Mild Dyspnea	Moderate Dyspnea	Severe Dyspnea
Treat underlying disease*	Treat underlying disease	Treat underlying disease
Treat psychosocial factors†	Treat psychosocial factors	Treat psychosocial factors
	Pulmonary rehabilitation‡ Consider anxiolytic	Pulmonary rehabilitation Facial cooling (by use of fan) Anxiolytics Opioids§ Noninvasive ventilation (88)

Treatment

❑Three treatment principles:

- Correct the correctibles
- Drug treatment
- Non-Drug Treatment

Correct The Correctibles

- Look for reversible causes of breathlessness.
- Do not assume that it is directly caused by cancer

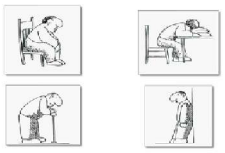
NON PHARMACOLOGICAL MANAGEMENT

- Positioning
- Airflow - use of fan /window
- Relaxation / Distraction/ Reassurance
- Energy conservation / Pacing
- Controlled Breathing techniques /physiotherapy
- Loose clothing

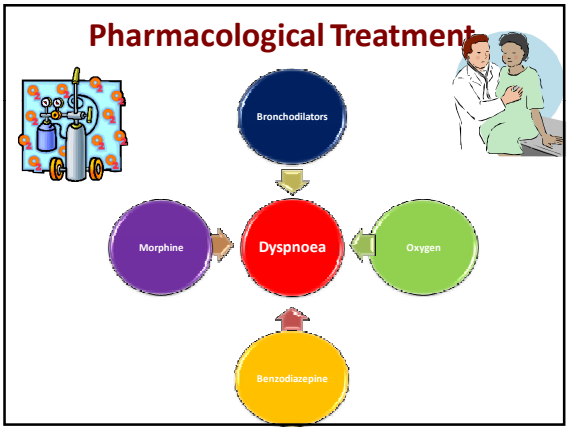
Breathing Techniq

- Start with position of ease
- Relax shoulders / upper chest
- Diaphragmatic 'tummy' breathin
- Breath out twice as long as breath in
- Pursed lips on breathing out if needed

Comfortable Positions if short of breath



Pharmacological Treatment



Opioids

- MOA:
  - ↓ the central processing of neural signals within the CNS
  - ↓ oxygen consumption in exercise and rest
  - ↓ perception of dyspnea
  - Pulmonary vasodilatation
  - Relieve dyspnea by depressing hypoxic or hypercapnic ventilatory response
- Use sustained release opioids (baseline) and immediate release opioids (breakthrough)
- Systemic administration of naloxone increase

Journal of Pain and Symptom Management
Volume 51, Issue 3, March 2016, Pages 581–588

Brief Report

Patient-Controlled Therapy of Breathlessness in Palliative Care: A New Therapeutic Concept for Opioid Administration?

- Context: Breathlessness is one of the most distressing symptoms experienced by patients with advanced cancer and noncancer diagnoses alike. Often, severity of breathlessness increases quickly, calling for rapid symptom control. Oral, buccal, and parenteral routes of provider -controlled drug administration have been described. It is unclear whether patient-controlled therapy (PCT) systems would be an additional treatment option.
- Objectives : To investigate whether intravenous opioid PCT can be an effective therapeutic method to reduce breathlessness in patients with advanced disease. Secondary aims were to study the feasibility and acceptance of opioid PCT in patients with refractory breathlessness.
- Methods: This was a pilot observational study with 18 inpatients with advanced disease and refractory breathlessness receiving opioid PCT. Breathlessness was measured on a self -reported numeric rating scale. Richmond Agitation Sedation Scale scores, Palliative Performance Scale scores, vital signs, and a self -developed patient satisfaction questionnaire were used for measuring secondary outcomes. Descriptive and interference analyses (Friedman test) and post hoc analyses (Wilcoxon tests and Bonferroni corrections) were performed.
- Results: Eighteen of 815 patients (advanced cancer; median age = 57.5 years [range 36–81]; 77.8% female) received breathlessness symptom control with opioid PCT; daily morphine equivalent dose at Day 1 was median = 20.3 mg (5.0–49.6 mg); Day 2: 13.0 mg (1.0–78.5 mg); Day 3: 16.0 mg (8.3–47.0 mg). Numeric rating scale of current breathlessness decreased (baseline: median = 5 [range 1–10]; Day 1: median = 4 [range 0–8], $P < 0.01$; Day 2: median = 4 [range 0–5], $P < 0.01$). Physiological parameters were stable over time. On Day 3, 12/12 patients confirmed that this mode of application provided relief of breathlessness.
- Conclusion : **Opioid PCT is a feasible and acceptable therapeutic method to reduce refractory breathlessness in palliative care patients.**

Anxiolytic

- Dyspnoea leads to anxiety and anxiety exacerbates dyspnoea
- Opioids have anxiolytic effect initially, later on patients become tolerant to this effect
- Anxiolytic alone can not be the first line of therapy, however this can be safely given in patients in whom anxiety is a prominent

Cochrane review of anxiolytic / dyspnoea

Benzodiazepines for the relief of breathlessness in advanced malignant and non-malignant diseases in adults (Review)

Simon ST, Higginson IJ, Booth S, Harding R, Weingärtner V, Bausewein C

- 8 studies (Aug, 16) : RCT/CCT: meta -analysis of 6
- 200 participants with advanced COPD & cancer
- No significant impact : positive small trend
- >drowsiness placebo, <drowsiness

Anxiolytic Therapy

- Lorazepam:0.5-1.0mg/h orally until settled, then dose routinely every 4-6 h to keep settled
- Diazepam;5-10 mg/h orally until settled then dose routinely every 6-8 h
- Clonazepam:0.25-2.00mg orally every 12h
- **Midazolam**:0.5mg IV per15min until settled, then by s/c or iv infusion

Bronchodilators

- Chronic smoker/ COPD patient
- Reversible airway obstruction

Diuretics

- End stage heart failure
- Lymphangitis carcinomatosis
- Nebulized furosemide

Glucocorticoids

- COPD exacerbations
- Tumor related SVCO
- Steroid responsive malignancies(lymphoma, thymoma)
- Radiation/chemotherapy induced pneumonitis
- Pulmonary lymphangitis carcinomatosis

Oxygen

- If hypoxemia is the cause, then oxygen is the only therapy required
- Perceived benefit in patients with cancer who are dyspnoeic far exceeds the number who have hypoxemia
- Probably oxygen has got the placebo effect, sensory stimulating effect, correct hypoxemia
- Disadvantage - costly and cumbersome

PERSPECTIVE OPEN

Oxygen therapy in palliative care

H John Fardy[1]

Breathlessness in advanced disease is a common problem, with the majority of people experiencing breathlessness in the weeks before death. The thrust of the new British Thoracic Society guidelines for home oxygen in adults is that oxygen therapy for home use is most useful in chronic hypoxaemia. However, clinicians make individual clinical decisions, cognisant of the guidelines but ultimately determined by what relieves the symptoms of the individual most effectively.

npj Primary Care Respiratory Medicine (2016) **26**, 15073; doi:10.1038/npjpcrm.2015.73; published online 7 January 2016

Guidelines make absolute recommendations. If a patient with advanced disease is breathless and hypoxic, oxygen is the preferred treatment; if they are breathless and not hypoxic, oxygen is not recommended. However, clinicians will (and should) make individual clinical decisions, cognisant of the guidelines but ultimately determined by what relieves the symptoms of the individual most effectively. The art of medicine lies in deciding, with the patient, what is reasonable treatment for this patient at this time.

Role of NIP

- Severe reversible condition
- For symptom relief in dying individual

Lancet Oncol. 2013 Mar;14(3):219-27. doi: 10.1016/S1470-2045(13)70003-3. Epub 2013 Feb 11.

Palliative use of non-invasive ventilation in end-of-life patients with solid tumours: a randomised feasibility trial.

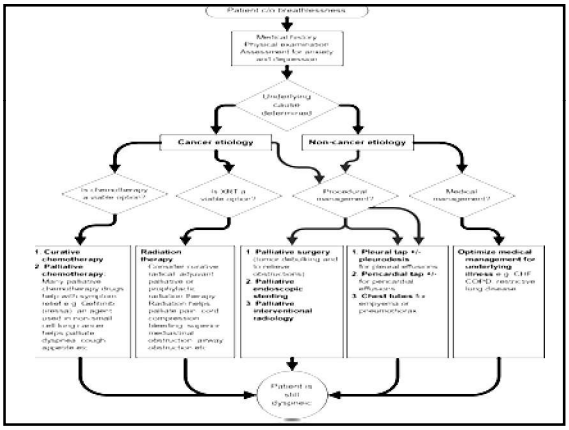
Nava S[1], Ferrer M, Esquinas A, Scala R, Groff P, Corsonini R, Guido D, Lin CH, Cuomo AM, Grassi M.

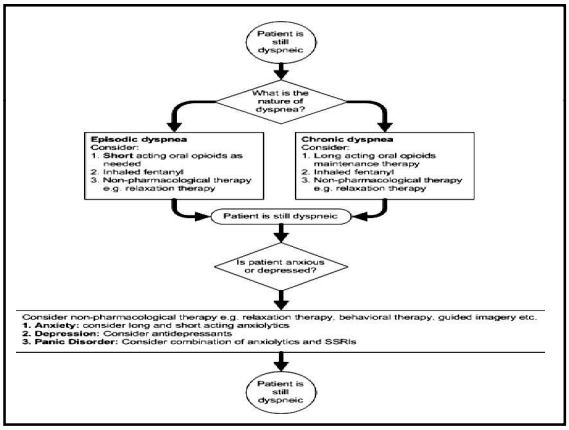
INTERPRETATION: Our findings suggest that NIV is more effective compared with oxygen in reducing dyspnoea and decreasing the doses of morphine needed in patients with end-stage cancer. Further studies are needed to confirm our findings and to assess the effectiveness of NIV on other outcomes such as survival. The use of NIV is, however, restricted to centres with NIV equipment, our findings are not generalisable to all cancer or palliative care units.

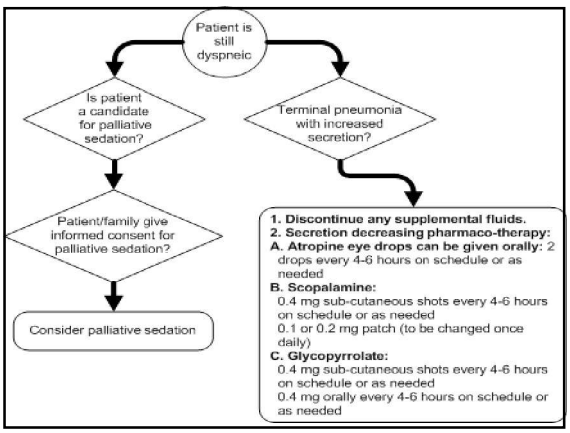
Terminal breathlessness

- Patients often fear suffocating to death. A positive approach to the patient and their family is important.
- No Patient should die with distressing breathlessness.
- Failure to relieve terminal breathlessness is a failure to utilize drug treatment correctly.
- Give an opioid with a sedative anxiolytics by CSCI and

.


Patient c/o breathlessness
Medical history
Physical examination
Assessment for anxiety and depression
Underlying cause determined?
Cancer etiology
Non-cancer etiology
Is chemotherapy a viable option?
Is XRT a viable option?
Procedural management?
Medical management?
1. Curative chemotherapy
2. Palliative chemotherapy
Many palliative chemotherapy drugs help with symptom relief e.g. Gefitinib (iressa) an agent used in non-small cell lung cancer helps palliate dyspnea, cough, appetite etc
Radiation therapy
Consider curative radical adjuvant palliative or prophylactic radiation therapy
Radiation helps palliate pain, cord compression, bleeding, superior mediastinal obstruction, airway obstruction etc
1. Palliative surgery
(tumor debulking and to relieve obstruction)
2. Palliative endoscopic stenting
3. Palliative interventional radiology
1. Pleural tap +/- pleurodesis
for pleural effusions
2. Pericardial tap
for pericardial effusions
3. Chest tubes
empyema or pneumothorax
Optimize medical management for underlying illness e.g. CHF, COPD, restrictive lung disease
Patient is still dyspneic


Patient is still dyspneic
What is the nature of dyspnea?
Episodic dyspnea
Consider:
1. Short acting oral opioids as needed
2. Inhaled fentanyl
3. Non-pharmacological therapy e.g. relaxation therapy
Chronic dyspnea
Consider:
1. Long acting oral opioids maintenance therapy
2. Inhaled fentanyl
3. Non-pharmacological therapy e.g. relaxation therapy
Patient is still dyspneic
Is patient anxious or depressed?
Consider non-pharmacological therapy e.g. relaxation therapy, behavioral therapy, guided imagery etc.
1. Anxiety: consider long and short acting anxiolytics
2. Depression: Consider antidepressants
3. Panic Disorder: Consider combination of anxiolytics and SSRIs
Patient is still dyspneic


Patient is still dyspneic
Is patient a candidate for palliative sedation?
Terminal pneumonia with increased secretion?
Patient/family give informed consent for palliative sedation?
Consider palliative sedation
1. Discontinue any supplemental fluids.
2. Secretion decreasing pharmaco-therapy:
A. Atropine eye drops can be given orally: 2 drops every 4-6 hours on schedule or as needed
B. Scopalamine:
0.4 mg sub-cutaneous shots every 4-6 hours on schedule or as needed
0.1 or 0.2 mg patch (to be changed once daily)
C. Glycopyrrolate:
0.4 mg sub-cutaneous shots every 4-6 hours on schedule or as needed
0.4 mg orally every 4-6 hours on schedule or as needed


BREVITY
LIVE Boldly.
PUSH YOURSELF.
DON'T SETTLE.
THANK YOU.