



Breathlessness

In Palliative Care

Breathlessness

- Definition & impact
- Prevalence
- Causes
- Principles of management
- Assessment
- Pharmacological management
- Non-pharmacological management

Breathlessness

- A subjective experience of breathing discomfort
- Qualitatively distinct sensations that vary in intensity
- Experience is derived from physiological, psychological, social & environmental factors
- May induce secondary physiological or behavioural responses

(American Thoracic Society 1998)

Impact of breathlessness

- Concurrent symptoms
 - Fatigue, poor concentration, loss of appetite, pain, memory loss
- Emotional
 - Anxiety, nervousness, fear, panic, depression, anger, helplessness, feeling of not being listened to
- Social/functioning
 - Inability to self care, isolation, loneliness

(Chan et al. 2004)

Prevalence

- IN CANCER

- Studies suggest that 15-79% patients with cancer experience breathlessness in the last year of life
- 70% experience breathlessness in the last 6 weeks of life
- 28% rate this as moderate or severe

(Bredin 2003)

- IN COPD

- 94% of people with COPD experience breathlessness in the last year of life

(Leach 2004)

Mechanics of breathing

- Purpose of breathing is to achieve gaseous exchange between the circulatory system and the outside world
- Complex feedback system involving:
 - Respiratory system
 - Cardiovascular system
 - Musculoskeletal system
 - Nervous system

Causes

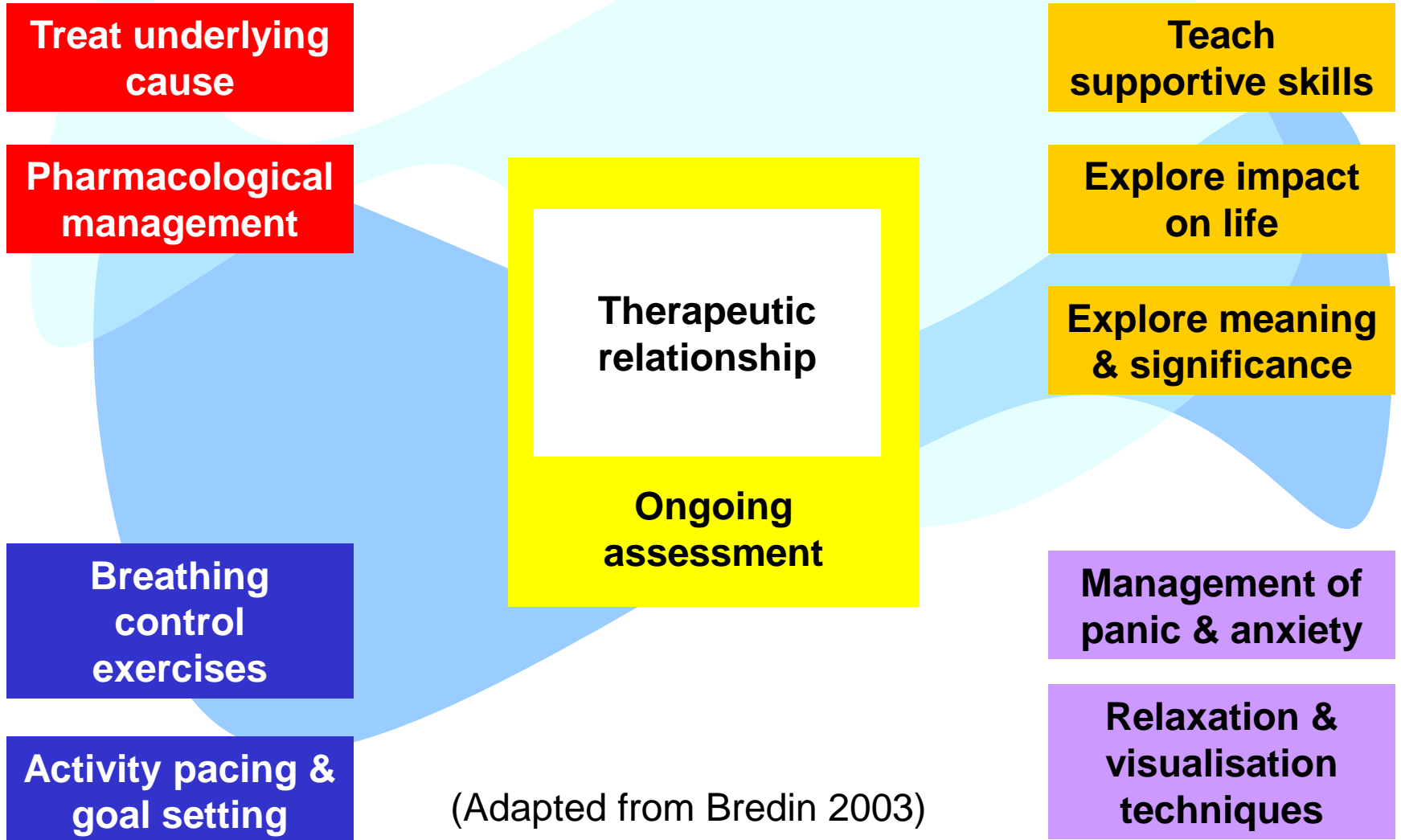
- Respiratory disease
- Heart failure
- Tumour invading lung
- Pulmonary embolus
- Infection – pneumonia, empyema
- Effusions – pleural or pericardial
- Superior vena cava obstruction
- Treatment related fibrosis
- Ascites
- Hepatomegaly
- Anaemia
- Generalised weakness

Managing breathless

- Integrative approach which deals with the:
 - Physiological
 - Behavioural (coping)
 - Cognitive (understanding)
 - Emotional (feelings)

(Bredin 2003)

Management



(Adapted from Bredin 2003)

Assessment

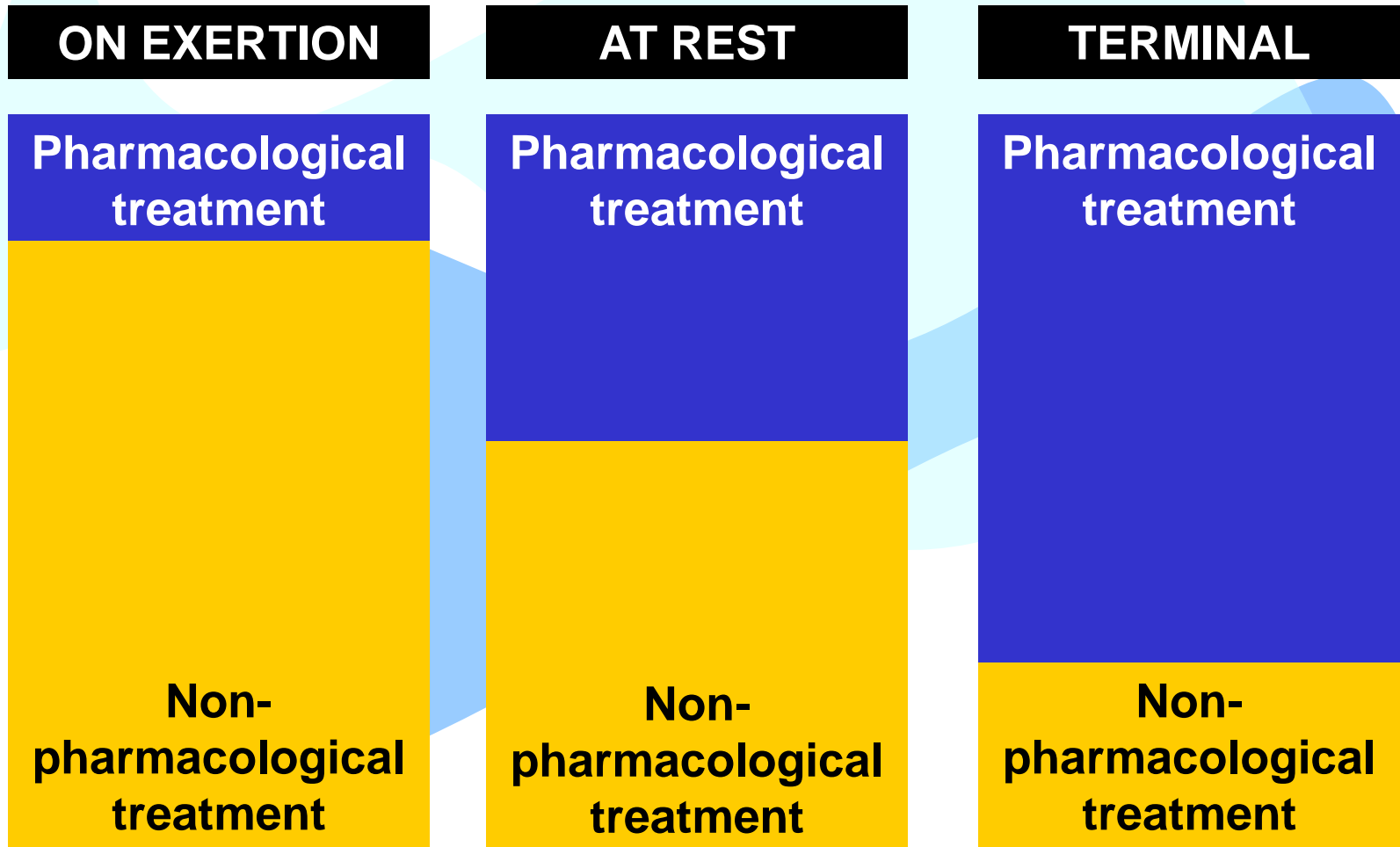
- History
- Description
- Severity
- Trigger factors
- Trajectory
- Concurrent symptoms
- Impact on emotional, functional & social wellbeing
- Behavioural coping strategies – short & long term
- Emotional coping strategies

(Chan et al. 2004)

Investigations

- Pulse oximetry
- FBC
- CXR
- Echocardiogram
- Spirometry
- CT

How breathless?



(Wilcock 1998)



Drug management

Drug management



- Opioids
- Anxiolytics
- Oxygen
- Others

Why opioids?

- Chemoreceptors in the respiratory centre in the brain stem regulate breathing by responding to decreased levels of oxygen (hypoxia) & increased levels of carbon dioxide (hypercapnia)
- Opioids bind to receptors (mu, kappa, delta), affecting the feedback process
- Peripheral receptor sites may account for some success with nebulised opioids

Jennings et al. 2001

- Cochrane review of randomised double blind placebo controlled trials of any opioid to alleviate breathlessness caused by any condition
- 18 studies
 - 16 non-cancer, 2 cancer
 - 8 oral opioid
 - 1 parenteral opioid
 - 9 nebulised opioid

Jennings et al. 2001

- Oral & parenteral opioids showed a positive effect on the sensation of breathlessness
- Benefit of nebulised opioids was not significant
- No significant effect on blood gases or SaO₂
- Only one study evaluated quality of life

Edmonds 2004

- Literature review of 17 studies looking at effect of oral or parenteral opioids on breathlessness
 - 11 studies in non cancer: 8 showed reduction in breathlessness
 - 6 studies in cancer: 5 showed reduction in breathlessness

Opioids

- Start with low dose, or if already on opioids consider 25-50% increase in regular
- Anecdotally, patients may benefit from more frequent dosing (possibly related to plasma peaks or the reassurance gained from regular nursing contact) (Davis 2005)
- Opioids can cause CO₂ retention in COPD, so should be used in caution in patients with history of hypercapnia

Simon et al. 2010

- Cochrane review of randomised controlled trials and controlled clinical trials assessing the effect of benzodiazepines in relieving breathlessness in patients with:
 - Advanced stages of cancer
 - Chronic obstructive pulmonary disease
 - Chronic heart failure
 - Motor neurone disease
 - Idiopathic pulmonary fibrosis

Simon et al. 2010

- Seven studies were identified, including 200 analysed participants with advanced cancer and COPD.
- Analysis of all seven studies did not show a beneficial effect of benzodiazepines for the relief of breathlessness in patients with advanced cancer and COPD.
- No significant effect could be observed in the prevention of breakthrough dyspnoea in cancer patients.
- Sensitivity analysis demonstrated no significant differences regarding type of benzodiazepine, dose, route and frequency of delivery, duration of treatment, or type of control.

Simon et al. 2010

Authors' conclusions:

- There is no evidence for a beneficial effect of benzodiazepines for the relief of breathlessness in patients with advanced cancer and COPD.
- There is a slight but non-significant trend towards a beneficial effect but the overall effect size is small.
- Benzodiazepines caused more drowsiness as an adverse effect compared to placebo, but less compared to morphine.
- These results justify considering benzodiazepines as a second or third-line treatment within an individual therapeutic trial, when opioids and non-pharmacological measures have failed to control breathlessness.

Anxiolytics

- Conflicting evidence, but generally felt to be useful in so far as they alleviate anxiety
- Diazepam given nocte may prevent attacks
- Lorazepam PRN for acute panic may be helpful once other interventions have been tried
- Use may be limited by side effects
- In COPD, diazepam found to reduce exercise tolerance with no effect on dyspnoea & caused dizziness
- Buspirone has been trialled in COPD
- Alcohol may have a similar effect

(Davis 2005)

Benzodiazepines

Drug	Peak plasma level	Plasma half life	Duration of action
Diazepam	30-90 mins	24-48h	3-30h
Lorazepam	60 mins	10-20h	6-72h
Midazolam	30 mins	2-5h	<4h

O₂ – benefit or burden?

- Cochrane Review (Cranston et al. 2008) failed to demonstrate a consistent beneficial effect of oxygen over air for patients with either advanced cancer or heart failure, although some participants appear to feel better with oxygen
- Booth's (2005) literature review concluded that oxygen was not beneficial to all, & that piped air may be as effective in some patients
- Uronis et al. (2008) reviewed 5 studies which showed no symptomatic benefit from oxygen therapy in cancer patients with refractory dyspnoea

Currow et al. 2009

- 4 year study in Western Australia looking at effects of palliative home oxygen on breathlessness
- 21.1% of all patients referred to the community palliative care service (n=5862) were prescribed oxygen at some time during their time in the service
- 2.4% (141/5862) were already using oxygen when referred to the service
- Dyspnoea scores before & after commencing oxygen were available for 413 people
- Of these, 36.3% (150) had more than a 20% improvement in mean dyspnoea scores after 7 days, although it was impossible to predict who would respond
- Overall results demonstrate no clinically significant improvement in breathlessness despite oxygen



- Try a fan first
- Sheffield Formulary suggests giving 2L/min if SaO₂<90%
- May be inappropriate to initiate if prognosis is short
- Burdens should be considered: fire hazard, restricts activity, impairs communication, can lead to hypercapnic respiratory failure

Others

- Steroids – but causes muscle weakness
- Bronchodilators
- Promethazine has been trialled in COPD
- Antipsychotics – chlorpromazine has been trialled in combination with morphine & levomepromazine may help in terminal breathlessness
- Tricyclics & SSRIs may have a role in alleviating anxiety & panic
- Nebulised furosemide
- Cannabinoids
- Heliox
- Non-invasive ventilation



Non-drug management

Emotional management

- 'Being with' the person
- Containing anxieties
- Exploring impact of the experience
- Exploring the meaning of the experience
- Teach supportive skills to families & carers

Behavioural management

- The 3Ps: prioritise, plan ahead & pace
- Position
- Abdominal breathing
- Pursed-lip breathing
- Cold air
- Muscle training & exercise
- Management of panic & anxiety, including the use of relaxation & visualisation techniques

Corner et al. 1996

- Pilot study of 20 patients with lung cancer
- Patients given weekly sessions of counselling, breathing re-training, relaxation & were taught coping strategies
- Distress improved by a median of 53%
- Dyspnoea improved by a median of 35%
- Functional ability improved by a median of 21%

Bredin et al. 1999

- Randomised controlled multicentre trial
- 119 patients with lung cancer
- Those randomised for intervention attended a nursing clinic offering breathing control, activity pacing, relaxation & psychosocial support
- The intervention group showed significant improvement at 8 weeks in breathlessness, performance status, depression, distress

Other approaches

- Complementary therapies
- Filshie et al. (1996) found that acupuncture initially improved breathlessness in 14/20 patients. Whilst breathlessness was as bad 24 hours later, there was a continued reduction in anxiety levels
- Cochrane review of non-pharmacological treatment for breathlessness found neuromuscular electrical stimulation, chest wall vibration, breathing training & walking aids to be effective in relieving breathlessness in advanced disease (Bausewein et al. 2008)

Useful resources

Free from Macmillan Cancer Support

be.macmillan.org.uk

- Managing Breathlessness (including Relax & Breathe CD)
- A Breath of Fresh Air CD ROM

Roy Castle Lung Cancer Foundation

www.roycastle.org

- A practical guide to breathlessness

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