RESPIRATORY FAILURE AND DYSPNEA: *NOT A SINGLE ENTITY*

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Disclosure

- No disclosures
- No Conflict of Interest
- No extra money (*sadly*…)

Objectives

- Emphasize the difference between respiratory failure and dyspnea
- Review cases and management strategies for Lung CA and COPD patients
- Discuss challenges related to chronic ventilator withdrawal
- Identify future needs and address questions

ARE DYSPNEA AND RESPIRATORY FAILURE THE SAME?

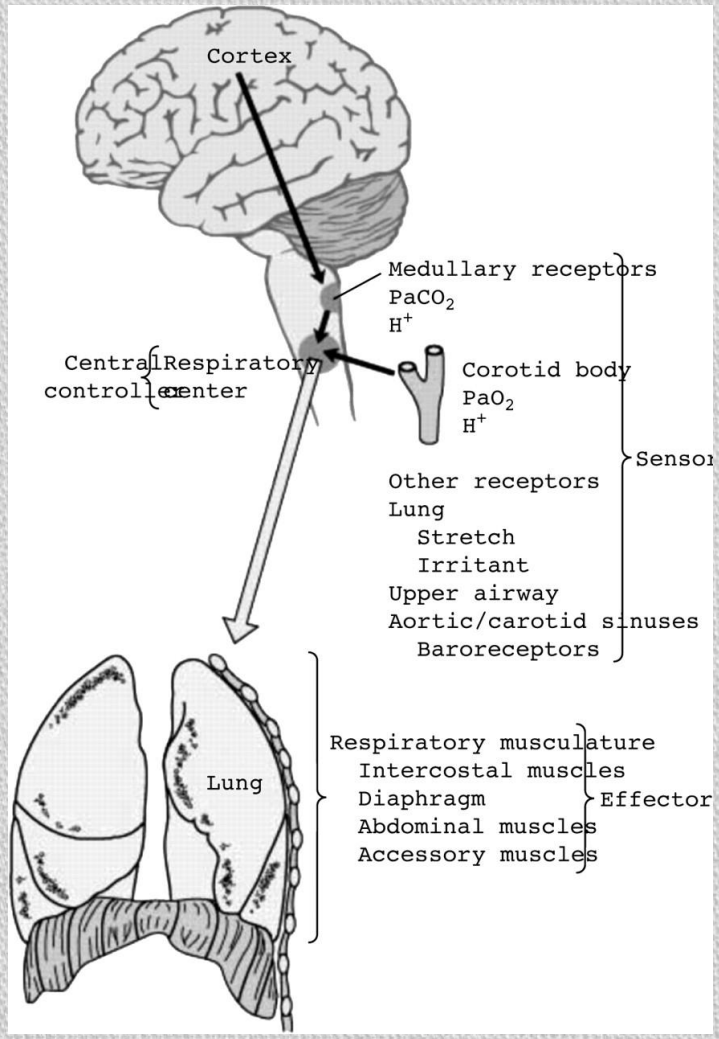
Respiratory Failure and Dyspnea

- NO… they can be mutually exclusive… or not

- **Respiratory Failure:**
  - The loss of the ability to ventilate/provide sufficient oxygen to the blood and systemic organs. Oxygenation or CO_2 elimination is poor.
    - ***Type 1 (Hypoxemic)*** - PO_2 < 50 mmHg on room air. These disorders interfere with the lung's ability to oxygenate blood. Eg. CHF, ALI.
    - ***Type 2 (Hypercapnic/ Ventilatory)*** - PCO_2 > 50 mmHg (if not a chronic CO_2 retainer). Eg. Obstruction, NMD, central, decreased drive.

- **Dyspnea:**
  - A *subjective* feeling of breathing discomfort
  - Symptom in 50% pts in acute care hospitals, 25% ambulatory setting

Control of respiration.



Rao A , and Gray D Postgrad Med J 2005;81:99-102

Recognition of palliative care - Evolution

- lung diseases can be incurable but fully treatable
  - Always sort of recognized

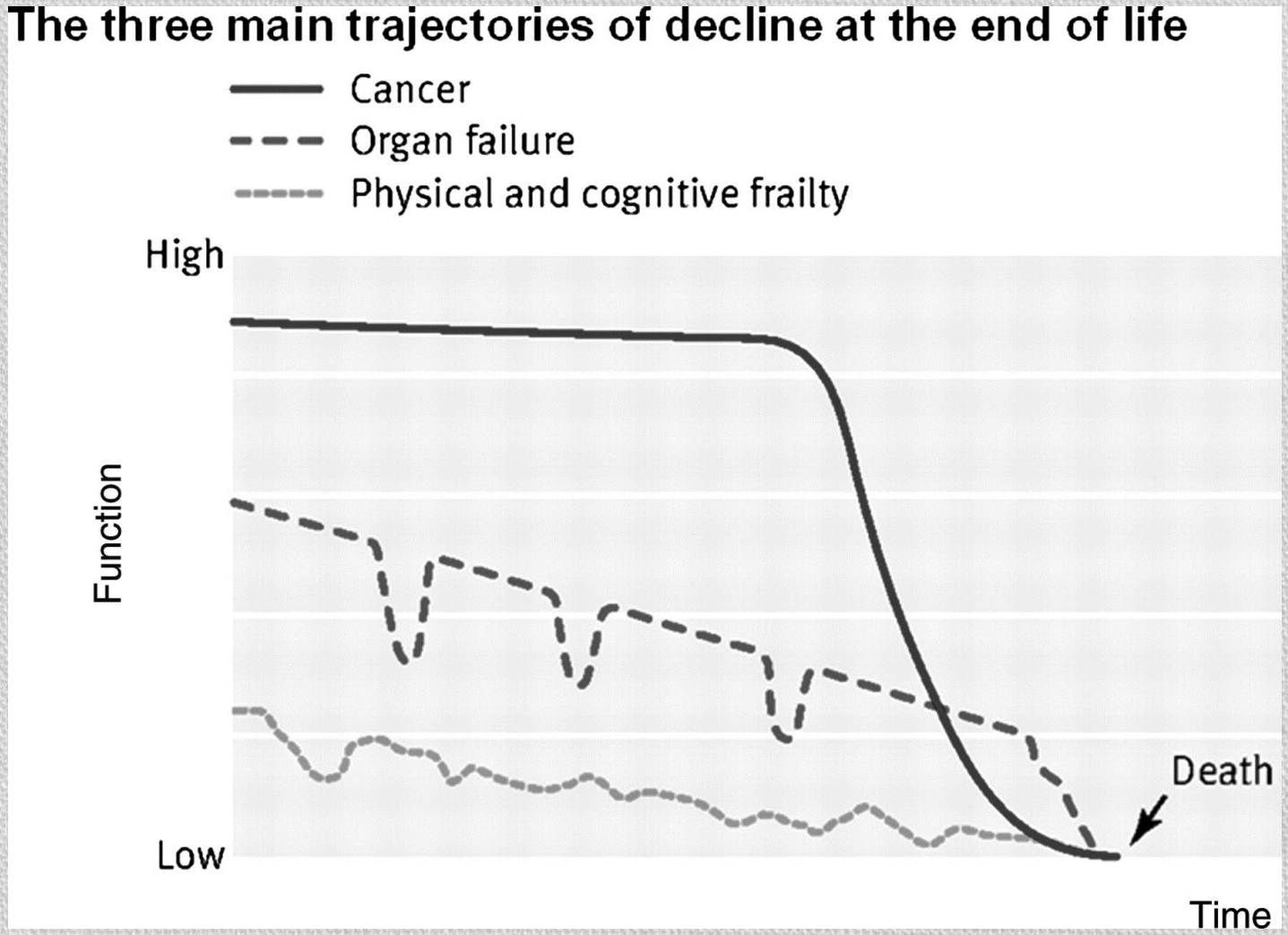
- Main areas that have been studied:
  - Qualitative vs. Quantitative studies
  - Lung CA, COPD, Pulmonary fibrosis, CHF
  - CF, other ILD, pHTN – recognized but not strong individual recommendations

- Guidelines:
  - CHEST (lung Ca) 2003 – Directives (EOL) and palliation
  - ATS 2007 – all lung diseases, not individualized

Symptoms

- Most core symptoms are generalizable
- Some evidence for individual disease states and morbidity
- Common:
  - Dyspnea- disease state
  - Pain
  - Anxiety
  - Side effects of meds
  - Infection
  - Existential suffering

Trajectories of decline.



Jaarsma T et al. Eur J Heart Fail 2009;11:433-443

EUROPEAN JOURNAL OF HEART FAILURE

Case 1: Ms. Malignante

- 52 year female with newly diagnosed NSCLC. Previously healthy, non-smoker and positive family history. Presents to ER with increased SOB and chest pain. SaO2: 95% rm air.

- Why is she SOB (acute? Related to her cancer?)
- Is the underlying etiology reversible?
- What needs to be done acutely?
- What symptoms can we treat acutely?
- What is her long term trajectory?
- When can we introduce ACP?

Ms. Malignante

- Things to consider:

- Current situation
  - How much investigation is needed?

- New diagnosis of metastatic cancer
  - Treatments she may get/treatment that can be helpful (eg. chemo, XRT)
  - Other symptoms: depression, anxiety

- Symptom management
  - She had a pleural effusion
  - Drained with thoracentesis with symptom resolution
    - Pigtail? PleurX? Repeat drainage?Pleurodesis?

Lung Cancer

- **Morbidity:** dyspnea, pain (++), existential suffering, depression, anxiety, chemo/XRT side effects, cough, hemoptysis
- May be complex pain depending on metastases – pleura, pericardium, bone, liver, brain
- Early advanced care directives neccesary
  - Prognostication, palliative benefits, home DNR
- Consider: palliative interventional techniques, pleurX insertion – if pt is not appropriate, manage the dyspnea with meds

Lung Cancer

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Early Palliative Care for Patients with Metastatic Non–Small-Cell Lung Cancer

Jennifer S. Temel, M.D., Joseph A. Greer, Ph.D., Alona Muzikansky, M.A., Emily R. Gallagher, R.N., Sonal Admane, M.B., B.S., M.P.H., Vicki A. Jackson, M.D., M.P.H., Constance M. Dahlin, A.P.N., Craig D. Blinderman, M.D., Juliet Jacobsen, M.D., William F. Pirl, M.D., M.P.H., J. Andrew Billings, M.D., and Thomas J. Lynch, M.D.

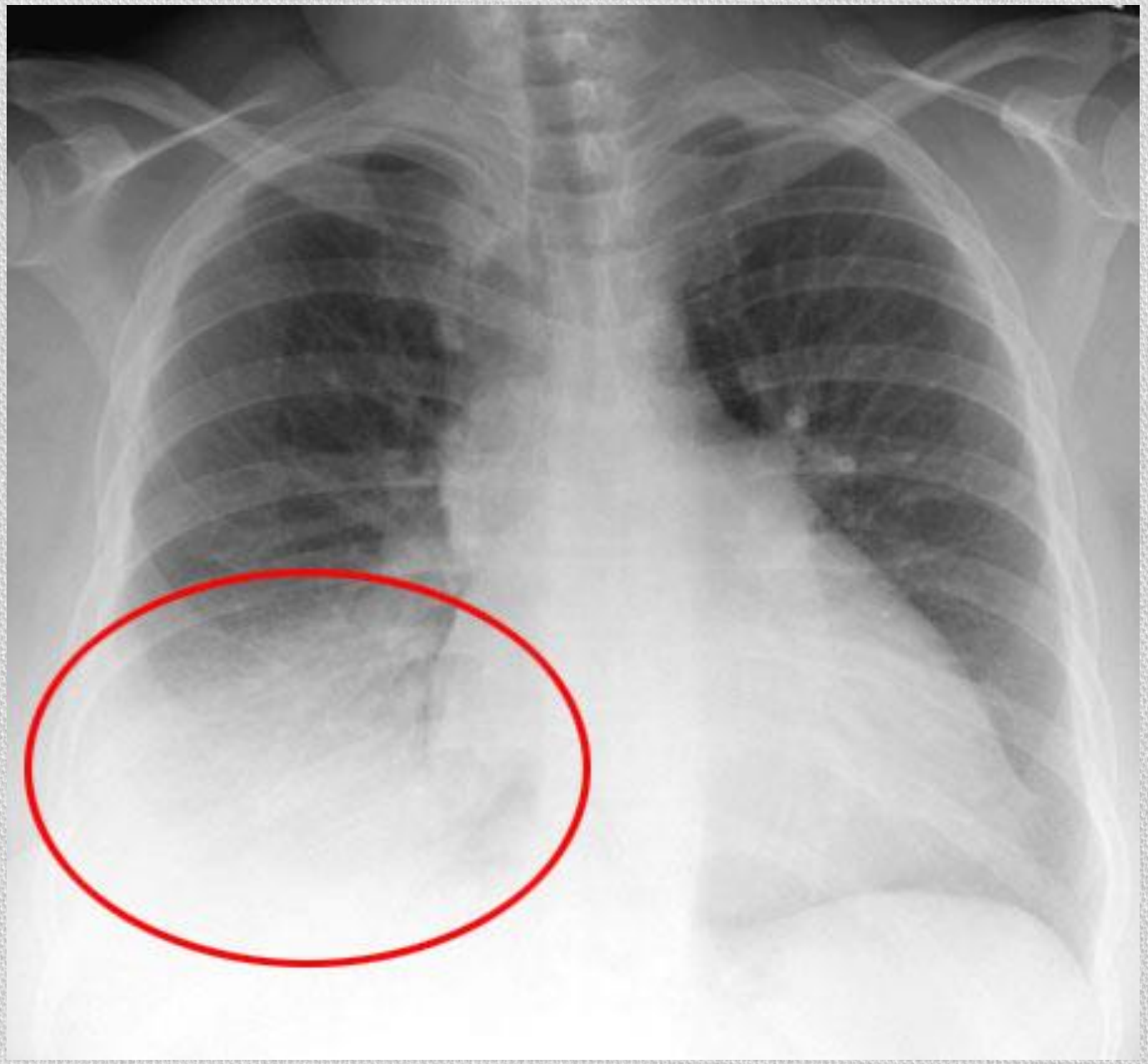
-Cohort of 151 newly diagnosed NSCLC patients randomly assigned to palliative care + med onc or med onc alone (2008 study)
- assessed QOL, mood, survival at 12 wks (primary endpoint of QOL change)
- Tools: Depression scale, anxiety scale, FACT - L

Case 2- Mr. Sloflo

- 65 y.o. male in clinic with increased pain L chest wall, severe dyspnea, decreased fxn over 2 months
- Now in wheelchair

- PmHx includes severe COPD (FEV1< 1L, 30%), CAD, current PPD smoker

- Wife concerned about finances and uncertain of his trajectory



Issues

- Pain
  - Pain meds?
  - Pain association with dyspnea?
  - Where is it coming from?
- Dyspnea
  - Strategies for management?
  - Differential?
  - Prognostics?
  - Advance Care Planning
- Social
  - Personal care
  - Finances
  - Mood disorders (cancer and COPD – at increased risk!)

Copd

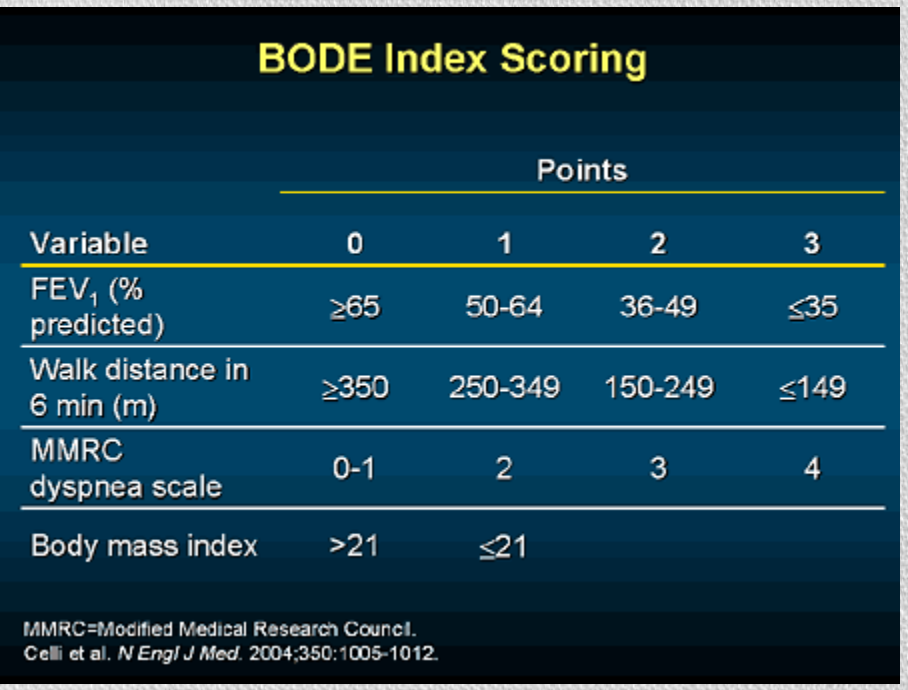
- Morbidity:
  - Dyspnea,
  - depression (up to 50% in studies)
  - anxiety (similar to dyspnea)
  - pain (chest pain, chronic full body pain)
  - repeat infectious exacerbations, repeat hospitalization
  - multiple co-morbidities
  - smoking status
- Debilitating –unpredictable disease trajectory
- Pulmonary rehab
- Opioids
- The O2 story – LTOT criteria

Morbidity and Mortality

- National Hospice and Palliative Care organization states that end-stage COPD is suspected in:

  - Disabling dyspnea at rest (In US: corresponding FEV1<30%)
  - Poor/no response to bronchodilators
  - Bed-to-chair existence
  - Repeat hospitalizations (NOT quantified)
  - Hypoxemia at rest
  - Hypercapnea (PCO2>50)
  - RHF from pulmonary cause
  - Unintentional, progressive wt loss (>10% over 6 months)
  - Resting tachycardia (>100 bpm)

Morbidity and Mortality



Bode score	1-yr Mortality (%)	2-yr Mortality (%)	3-yr Mortality (%)
0-2	2	6	19
3-4	2	8	32
5-6	2	14	40
7-10	5	31	80

Note: Many studies done looking at other variables: co-morbidities, functional capacity alone, rate of decline in FEV1 (> 40 ml/yr) as well.

-25% die within 1-yr of acute hospitalization

- Median survival after ICU visit acutely = 2 yrs, with 50% likelihood of repeat hospitalization in 6 months

Mr. Sloflo

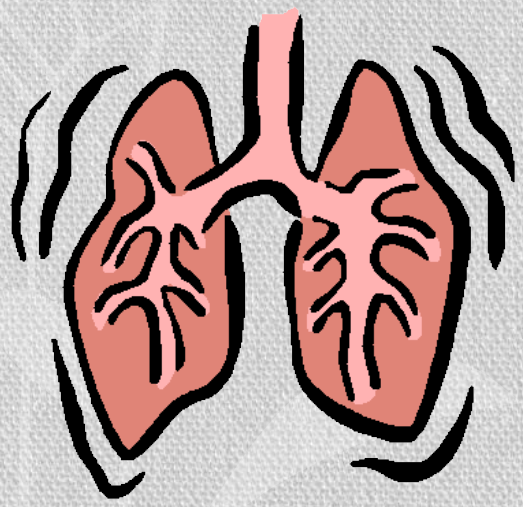
- Used opioids for dyspnea-some relief
- Homecare CHN
- BC Palliative benefits – His PPS when seen: 40% and decreasing
- Community DNR
- Home OT
- Qualified for O2 – used nocturnal (thoughts?)
- Home Hospice Program social work involvement
- Admitted to hospital 2 X after first seen
- Palliative care consult at each admission
- Passed away on his second admission, 2 months after first seen (transferred to PCU for dyspnea mgmt at EOL)
- He never quit smoking, did not keep education appointments
- For his wife: bereavement follow up (by PCU and Home Hospice)

Dyspnea Management

- Non-pharmacologic strategies:
  - Cochrane review 2011
    - NMES, CWV - good
    - Walking aides, breathing training -good
    - Relaxation, fan, psychotherapy, combinations – need further data
    - Accupuncture – mixed results
  - Interventional procedures where appropriate
  - Ventilation
  - Fresh Air
    - Cool temperature
  - Energy Conservation
  - Position
    - Ease of abdomen/chest movements
  - Environment
    - Claustrophobia, humidification

Dyspnea Management

- Pharmacologic strategies:
  - Compliance and inhaler technique, switch to nebs?
  - Opioids
  - Oxygen vs. Fan
  - Steroids – underlying causes
  - Adjuvant medications:
    - Anxiolytics
    - Antidepressants
    - Neuroleptics (Methotrimeprazine, Chlorpromazine)



Opioids

- Studied extensively
- Oral and parenteral opioids for palliation of end-stage diseases useful in Cochrane review (currently being reviewed again) and individual studies
- Nebulised opioids equivocal, not used regularly
- Start very low and slow

Opioids

- They are pretty safe
  - No evidence to suggest that responsible use causes respiratory compromise (O2 saturations, gas exchange abnormality)

- Start low and go slow
  - Short-acting, to start
  - Think of side effects (elderly, frail, organ dysfunction)
  - Opioid naive: lowest doses (titrate), PRN vs. Q4h
  - On opioids: increase the dose overall vs. Increase PRN
    - 25-50% reasonable and common, may need more

Do not allow suffering.

Case 3 - Mr. Hyper-Cap

- 69 yo male
- ALS, trached (planned, not emergent)
- chronic ventilator for 6 years (A/C home vent)
- Multiple PNA, UTI
- Blinking only communication
- Previously worked as an accountant
- Choosing for d/c ventilation because of yet another episode of urosepsis
- ISSUES:
  - Immediate
  - During the d/c

ALS

- Life expectancy is typically 2-5 years while some die sooner and other live much longer, i.e., 20% over 5 years and 10% over 10 years
  - ALS Society of Canada
- Most frightening symptoms to patients: Breathlessness and "choking" on secretions
- Pts may choose ventilation or not
  - Hypercapneic without it
- May stress to patients that a "choking" death would be VERY rare
- Recommendations currently support the use of opioids, anticholinergics and benzodiazepines (anxiety)

ALS

- Complete respiratory insufficiency due to neuromuscular disease, but with the central respiratory drive intact, so the sensation of air hunger is preserved.
- Absence of simple and reliable indicators of distress, ie, the patient cannot grimace or otherwise indicate distress.
- Monitoring pulse would not be reliable due to the tachycardic response to both hypoxia and any premedications (eg. scopolamine given to minimize secretions)
- Issues?
  - Medical
  - Legal
  - Ethical
- *Medications to use??*

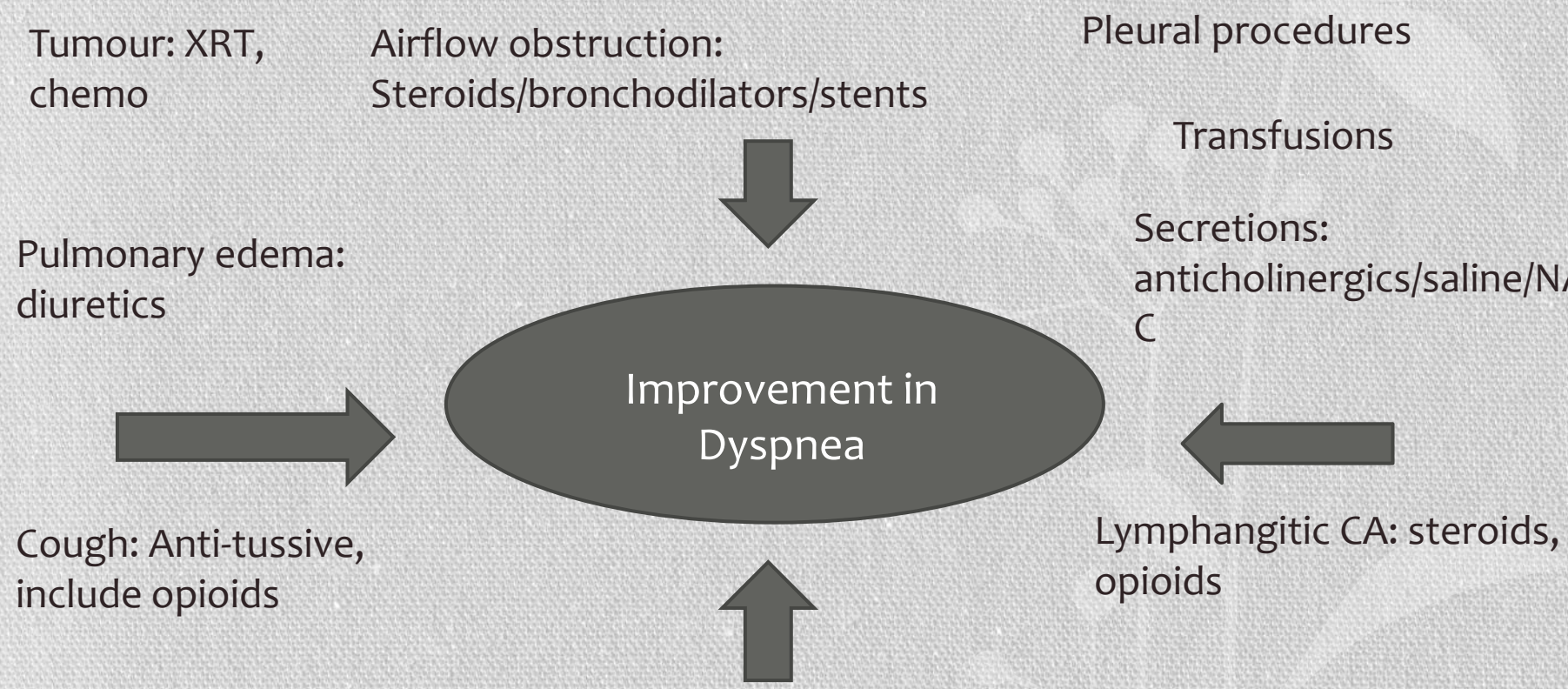
Ventilatory Support - Withdrawal

- Medical
  - Timing
  - Symptoms
  - Where the ventilator can be discontinued (ICU vs. PCU)
- Legal
  - Documentation
  - Informed consent
- Ethical
  - Autonomy
  - Do no harm

Summary

- Assess the patient
  - History, investigations
  - Severity
  - Fears
- Look for a treatable cause
- Palliation of symptoms
  - Opioids/adjuvants
  - Anxiety?
  - Oxygen?
  - Non-pharmacologic approach
- Supports
  - Home care
  - Pulmonary Rehab (eg. COPD)
  - Walking aids (OT)
- Re-assess for increasing treatments over course of the illness
  - Need for parenteral drugs
  - Need for hospitalization
  - Changes in *goals of care*
  - Increased or Palliative sedation?

Treating the Underlying Cause



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