ILD comorbidities

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Comorbidities

• Comorbidity: Other diseases that accompanies the disease of interest
  • High blood pressure and heart disease
  • Obesity and diabetes

• Morbus = “disease”, morbidus = diseased

• May be caused by or contribute to disease
Co-morbidities of ILD

Emphysema

Sleep apnea

Pulmonary hypertension

Gastro-esophageal reflux
What is emphysema?

Why is it associated with ILD?

- Seen in up to 30% of IPF patients
- More common in smokers, as is some ILD
- CT scans and PFTs done for one disease allow us to diagnose the other
Why do we care?

• Combined pulmonary fibrosis and emphysema might be a different kind of pulmonary fibrosis

• Patients with both have even more trouble getting oxygen

• More likely to have pulmonary hypertension

• Not clear same treatments work (probably do!)
How do we find it?

- CT scan with emphysema
- PFTs with obstruction as well as restriction, extra low DLCO

*Caminati et al. Eur Respir Rev 2019 Oct 1;28(153):*
How do we treat it?

- Newly appreciated

- Probably ILD drives clinical course so treatment based on that

- Now included in “progressive fibrosis” - eligible for nintedanib
What is pulmonary hypertension?

High pressure in the blood vessels of the lungs

http://www.nationwidechildrens.org/pulmonary-hypertension
Why is it associated with ILD?

- Estimates 10-50% in IPF

- Maybe be related to low oxygen levels tightening walls of blood vessels

- Blood vessels could be destroyed by scar

- Some diseases directly cause both pulmonary fibrosis and pulmonary hypertensions
How do we find it? Echocardiogram

https://micc.com/service/echocardiography-stress-echocardiogram
How do we find it? Right heart catheterization

https://en.wikipedia.org/wiki/Pulmonary_artery_catheter#/media/File:Pulmonary_artery_catheter_english.JPG
How do we treat it?

• Keep oxygen above 90%

• Treat sleep apnea

• Medication may help severe PH
  • Case by case
  • Some medications may help
    • tested for fibrosis, no effect (bosentan, sildenafile)
  • Ambrisentin may worsen fibrosis
What is sleep apnea?

• Breathing interruption when asleep

• Can be from not trying to breathe ("central") or not being able to breathe ("obstructive")
What is obstructive sleep apnea?

Relaxation of muscles during sleep blocks the airway -> no breath -> low oxygen -> waking up -> daytime sleepiness

https://www.mayoclinic.org/diseases-conditions/obstructive-sleep-apnea/symptoms-causes/syc-20352090
Why is it associated with ILD?

- US Adults in ~ 30% men, 17% women have some OSA
- Estimates in IPF range from 6-91%
- Vanderbilt IPF clinic: 88% of patients had some obstructive sleep apnea

- Smaller lung volumes may let airway collapse
  - Vanderbilt study no clear correlation with smaller lungs->worse OSA

- GERD associated with OSA might cause more ILD
Why do we care?

• Sleep apnea interrupts sleep – terrible!
• Daytime sleepiness is a major complaint

• Nocturnal hypoxemia is bad.
  • Puts a strain on the heart
  • Contributes to “pulmonary hypertension”
  • May contributes to systemic hypertension and heart disease
How do we find it?

• Symptoms: snoring, daytime sleepiness
• Low oxygen at night- “overnight oximetry”

• Sleep study: “polysomnogram”
  • Formal sleep study in sleep lab
  • Measures how often there is no airflow and oxygen levels fall
  • Can be done at home IF not on oxygen
How do we find it: Polysomnogram

Poly – many. Somno = sleep Gram = recording

https://www.nhlbi.nih.gov/health/health-topics/topics/slpst/during
How do we treat it?

CPAP: Continuous Positive Airway Pressure
Can try dental devices, weight loss

http://www.coreproducts.com/
mini-core-cpap-pillow.html

What is “GERD”?

Gastro-Esophageal Reflux Disease

Why is it associated with ILD?

- Small study tested 17 patients with IPF
  - 16 had GERD, but only 4 had symptoms!
  - Later study found 87% of IPF patients had GERD, about half had symptoms

- Splashing acid into lungs may cause ILD
- High pressures in breathing may cause reflux

Hiatal hernia makes reflux even more likely

- Hiatal hernia more common in patients with IPF
- 37% of IPF patients by CT scans
- Compared to 16% of asthmatics and 13% of patients with COPD

Enlarged esophagus increases reflux

Patient with scleroderma showing “patulous” – enlarged and floppy - esophagus
Why do we care?

- Aspiration: inhaling substances into the lung
- “Micro-aspiration” – inhaling small amounts of acid or stomach contents into the lung
- Causes fibrosis in models
  - “in vivo” (in living animals)
  - “in vitro” (in cells grown in a dish)
- May contribute to cough
How do we find it?

- Symptoms
- pH probe testing
  - Probe into esophagus
  - Records acid exposure
- Barium swallow
  - Drink “contrast”
  - Can be seen going into stomach or refluxing up

http://kansasvoicecenter.com/kvcwp/wp-content/uploads/2013/05/pH-Probe-1.jpg
http://www.radiologyclearwater.com/General.aspx
How do we treat it: Lifestyle

- Elevating the head of the bed, lying on left side reduced reflux (measured by pH probe)
- Avoid eating before bedtime

Arch Intern Med. 2006 May 8;166(9):965-71.
How do we treat it: Medication

- Reduce acid in esophagus
- No studies proving effect in fibrosis
- Pilot study for cough - might work

- H2 blockers:
  - famotidine (Pepcid), cimetidine (Tagamet), * ranitidine (Zantac) recalled!

- “PPIs” Proton Pump Inhibitors
  - Over the counter: omeprazole (Prilosec), lansoprazole (Prevacid), esomeprazole (Nexium)
  - Prescription only: pantoprazole (Protonix), rabeprazole (AcipHex),
    dexlansoprazole (Dexilant, Kapidex)
How do we treat it: Surgery

- Clinical trial of minimally invasive surgery “fundoplication” for IPF
- Was safe, well tolerated
- No clear effect on fibrosis

http://www.dallasreflux.com/gerd-services-dallas/
Other comorbidities:

- **Coronary artery disease**
  - Up to 10% of deaths in IPF patients in one study

- **Venous thromboembolism (Blood clots)**
  - More common in IPF
  - Preventive blood thinners don’t seem to help – warfarin may even be harmful

- **Lung cancer**
  - Screen based on smoking history. Radiation may be effective if surgery too risky

- **Depression**
  - Screen and provide support
Summary

• ILD is associated with several other conditions

• Emphysema is common

• Sleep apnea: Screen for nighttime hypoxemia and obstruction

• GERD: Consider lifestyle modification. Medication may help cough

• Pulmonary hypertension: Consider echocardiogram especially if low oxygen levels
Thank you!