SEEK

Stephanie M. Levine, MD, FCCP
University of Texas Health Science Center-San Antonio
Conflict of Interest Disclosure

- No relationships exist with industry
- I am on the SEEK Editorial Board
A 45-year-old woman is referred for mild shortness of breath and the constellation of findings noted on the chest (see Figure 194-A) and abdominal (see Figure 194-B) CT scans.
QUESTION 1

Figure 194-A

Figure 194-B
QUESTION 1

- Which of the following statements is correct regarding this disease process?
  A. Lung tissue will stain positive with S-100.
  B. A cholesterol pleural effusion develops in one-third of patients.
  C. The disease does not recur following lung transplantation.
  D. Rapamycin (sirolimus) may be therapeutic.
ANSWER 1

- Which of the following statements is correct regarding this disease process?
  A. Lung tissue will stain positive with S-100.
  B. A cholesterol pleural effusion develops in one-third of patients.
  C. The disease does not recur following lung transplantation.
  D. Rapamycin (sirolimus) may be therapeutic.
Lymphangioleiomyomatosis (LAM)

- Rare disease exclusively in women
- Young women of reproductive age
- Mean age 35 years
- Pre-menopausal > 95%
- Prevalence 1-2/million
Lymphangioleiomyomatosis

- Sporadic LAM (S-LAM) - less common but more identified (85%)
- Tuberous sclerosis complex (TSC-LAM) - 15%
- TSC - autosomal dominant
  - Seizures, brain tumors, cognitive impairment, sebaceous adenomas, angiomyolipomas, **pulmonary LAM in 1-25%**
LAM - Pathogenesis

- Atypical smooth muscle proliferation in bronchovasculature, lymphatics and interstitium
- HMB-45+ smooth muscle cells (melanocytic differentiation)
- Extensive cysts
- Estrogens play major role
Lymphangioleiomyomatosis

- S-LAM and TSC-LAM associated with mutations in TSC genes needed for signal regulation
- Mutations in TSC-1 (hamartin gene) or TSC-2 (tuberin gene) via MTOR (mammalian target of rapamycin) signaling pathway
- Controls cell growth and regulation
- Sirolimus - inactivates TOR
LAM- Clinical Findings

- Symptoms
  - progressive dyspnea, cough, hemoptysis,
  - Duration- 3-5 yrs

- Physical exam
  - crackles, decreased BS, ascites, abdominal masses

- PFTs
  - mixed restriction and obstruction
  - 1/3 normal
LAM Radiology

- Cysts - thin walled, diffuse
- No nodules or fibrosis
- PTX
- Chylous effusions
- Hyperinflation
LAM- Diagnosis

- Diagnosis
  - compatible clinical course
  - HRCT
  - Stain for HMB-45- tissue
  - VEGF-D (serum > 800 pg/ml)
LAM- Complications/ Other Findings

- Recurrent pneumothoraces in 60-70%
  - High recurrence- Ave 4.4
  - Pleurodesis often required
- Chylous pleural effusions in 1/3
- Chylous ascites
- Angiomyolipomas
  - kidneys, uterus, ovaries, lymph nodes, liver, spleen
  - blood, smooth muscle, fat
  - 93% with TSC-LAM and 50% with S-LAM
Angiomyolipoma
QUESTION 1

Figure 194-A

Figure 194-B
LAM- Treatment

- Oophorectomy (rarely performed currently)
- Medroxyprogesterone acetate
- Avoid estrogens or pregnancy
- Bronchodilators
- Octreotide (for chyloous effusions)
- Sirolimus- FDA approved 5/15
  - Suppresses smooth muscle proliferation
  - Suppresses DNA synthesis of LAM cells in vitro
  - Beneficial effects on angiomyolipomas and pulmonary function
- Lung transplantation
  - 65% 5 year survival
  - Can recur
LAM- Prognosis

• Indolent but progressive course
• 10 year survival (20-80%)
• Cause of death- respiratory failure
ANSWER 1

- Which of the following statements is correct regarding this disease process?
  A. Lung tissue will stain positive with S-100. no, HMB-45
  B. A cholesterol pleural effusion develops in one-third of patients. no, TG (chylous)
  C. The disease does not recur following lung transplantation. yes, it does
  D. Rapamycin (sirolimus) may be therapeutic.
QUESTION 2

- A 20-year-old woman with acute myelogenous leukemia received autologous stem cell transplantation 16 days earlier. During the past several days she has developed a nonproductive cough, dyspnea, and fever. Her oxygen saturation has fallen and she now requires supplemental oxygen. A chest radiograph and representative images from her chest CT scan are shown. Flexible bronchoscopy is performed and serial (left to right) syringes of bronchoalveolar lavage (BAL) fluid are shown. BAL fluid recovered from several other segments has a similar appearance. The bacterial, fungal, and acid-fast smears of BAL fluid are negative, and cytology of BAL fluid is negative for infectious agents.
QUESTION 2

Which of the following statements regarding this condition is true?

A. The condition occurs in ≤ 5% of stem cell transplant recipients.
B. The condition is more common in allogeneic than autologous stem cell transplantation.
C. Hemoptysis occurs in about 50% of patients with this condition.
D. Transbronchial biopsy is often necessary to confirm the diagnosis.
QUESTION 2

Which of the following statements regarding this condition is true?

A. The condition occurs in ≤ 5% of stem cell transplant recipients.
B. The condition is more common in allogeneic than autologous stem cell transplantation.
C. Hemoptysis occurs in about 50% of patients with this condition.
D. Transbronchial biopsy is often necessary to confirm the diagnosis.
RATIONALE- Diffuse Alveolar Hemorrhage (DAH)

• Complicates hematopoietic stem cell transplantation (SCT) < 1-2 % in most series but 5% in others
• Autologous ≥ allogeneic
• Risk factors
  • pretransplant intensive chemotherapy
  • total body/thoracic radiation
  • renal dysfunction
  • weak association of DAH with low platelets and not clearly corrected with platelets
  • acute GHHD
  • WBC recovery
RATIONALE- DAH

- Pathogenesis- combination of underlying lung injury, including microvascular damage and microthrombi, from prior radiation or chemotherapy, plus acute inflammation with neutrophil infiltration and cytokine release.
RATIONALE- DAH

- Clinical findings - dyspnea, cough, fever, hypoxemia, diffuse infiltrates, hemoptysis is uncommon (approx. 15%)
- Timing - early complication, usually within the first 30 days during engraftment
- Radiology - interstitial and alveolar infiltrates on CXR and bilateral areas of GGO and consolidation on CT
- Diagnosis – BAL with progressively bloody return on serial BAL and ≥ 20% hemosiderin-laden macrophages, plus absence of infection.
- Transbronchial biopsy - not necessary and may lead to increased bleeding
RATIONALE- DAH Treatment

- Systemic corticosteroids in moderate to high doses, although absence of prospective randomized trials
- Factor VIIa, PLEX
- Many patients require mechanical ventilatory support
- Increased risk for secondary infections and other complications
- Prognosis of DAH in SCT recipients is poor, with mortality rates averaging 80%
QUESTION 2

Which of the following statements regarding this condition is true?

A. The condition occurs in ≤ 5% of stem cell transplant recipients.
B. The condition is more common in allogeneic than autologous stem cell transplantation. no, equal or opposite
C. Hemoptysis occurs in about 50% of patients with this condition. no, less
D. Transbronchial biopsy is often necessary to confirm the diagnosis. no, BAL and TBBx can be risky
Case 3

- 44 yo man with c/o 20 lb. weight loss, night sweats, fevers and productive cough without hemoptysis x 4 weeks.
- PMH- 40 pk years tobacco use
- PE-
  - thin, T-38.3°C, VSS
  - HEENT- poor dentition
  - Lungs- RUL egophony and scattered wheezes
Case 3

- CBC- WBC- 10,000/mm³ (10 x 10⁹/L)
- Hct-31%
- Sputum for AFB negative x 3
- Bronchoscopy performed.
- Material is AFB negative
H and E Stain

GMS Stain
The appropriate treatment for the most likely diagnosis in this patient is:

A. Penicillin IV x 4-6 weeks then PO x 6-12 months
B. Imipenem IV x 6 weeks
C. Trimethoprim/sulfamethoxazole PO x 6 months
D. Piperacillin/clavulanic acid IV x 2 weeks then amoxicillin PO x 2 months
E. Penicillin PO x 3 months
The appropriate treatment for the most likely diagnosis in this patient is:

A. Penicillin IV x 4-6 weeks then PO x 6-12 months
B. Imipenem IV x 6 weeks
C. Trimethoprim/sulfamethoxazole PO x 6 months
D. Piperacillin/clavulanic acid IV x 2 weeks then amoxicillin PO x 2 months
E. Penicillin PO x 3 months
Actinomycosis

- Cervicofacial, abdominal and thoracic disease
- Thoracic involvement from aspiration from oropharynx
- Gram + filamentous anaerobic bacteria, sulfur granules, AFB-negative
- Nocardia- weakly acid-fast, TMP/SMX
Necrosis

Sulfur granules
Thoracic Actinomycosis

- Subacute-chronic pneumonia
- Fevers
- Chills
- Cough
- Weight loss
- Chest pain
- Hemoptysis
- Anemia
Thoracic Actinomycosis

- CXR- mass or infiltrate, + cavitation, + pleural disease
- Empyema necessitans-
  - crosses fissures and can invade bone
- Diagnosis- FNA, bronchoscopy or biopsy, culture
Thoracic Actinomycosis - Treatment

- Penicillin IV x 4-6 weeks then oral for 6-12 months
- Other agents - ceftriaxone, amoxicillin
- If penicillin allergic - tetracyclines, macrolides, clindamycin
- ? surgery
The appropriate treatment for the most likely diagnosis in this patient is:

A. Penicillin IV x 4-6 weeks then PO x 6-12 months
B. Imipenem IV x 6 weeks- covers but not needed
C. Trimethoprim/sulfamethoxazole PO x 6 months-no, this would be for nocardia
D. Piperacillin/clavulanic acid IV x 2 weeks then amoxicillin PO x 2 months-ok, but not needed and short duration
E. Penicillin PO x 3 months- wrong route and duration
QUESTION 4

Which of the following patients, assessed following rehabilitation, would be the best candidate for lung volume reduction surgery (LVRS)?

A. A 60-year-old man with upper lobe emphysema and an exercise capacity of 30 W following rehabilitation. FEV1 is 30% predicted, and Dlco is 28% predicted.

B. A 52-year-old woman with diffuse emphysema and an exercise capacity of 50 W following rehabilitation. FEV1 is 28% predicted, and Dlco is 30% predicted.

C. A 58-year-old man with upper lobe emphysema and an exercise capacity of 60 W following rehabilitation. FEV1 is 32% predicted, and Dlco is 40% predicted.

D. A 61-year-old man with diffuse emphysema and an exercise capacity of 30 W following rehabilitation. FEV1 is 18% predicted, and Dlco is 15% predicted.
Which of the following patients, assessed following rehabilitation, would be the best candidate for lung volume reduction surgery (LVRS)?

A. A 60-year-old man with upper lobe emphysema and an exercise capacity of 30 W following rehabilitation. FEV1 is 30% predicted, and Dlco is 28% predicted.

B. A 52-year-old woman with diffuse emphysema and an exercise capacity of 50 W following rehabilitation. FEV1 is 28% predicted, and Dlco is 30% predicted.

C. A 58-year-old man with upper lobe emphysema and an exercise capacity of 60 W following rehabilitation. FEV1 is 32% predicted, and Dlco is 40% predicted.

D. A 61-year-old man with diffuse emphysema and an exercise capacity of 30 W following rehabilitation. FEV1 is 18% predicted, and Dlco is 15% predicted.
LVRS - NETT

- National Emphysema Treatment Trial (NETT) - 1,218 patients
- NETT excluded the highest risk patients
  - patients with FEV1 < 20% of predicted and a Dlco < 20% of predicted or diffuse changes with CT is at high risk of death and will have little benefit from LVRS, better for LT
- Exercise capacity, as defined in the study:
  - was determined following a period of 6 to 10 weeks of pulmonary rehabilitation and defined by a gender-specific 40% percentile
  - 25 W for women and 40 W for men

LVRS Improves:

- Lung elastic recoil
- Exercise tolerance/capacity
- Residual volume and FRC
- Ventilatory mechanics
  - Intrinsic PEEP
  - Dynamic compliance
- Work of breathing
- Gas exchange
- Cardiocirculatory function

Upper lobe predominant with low exercise tolerance
Figure 1.

The diagram illustrates the classification of NETT Patients based on FEV1 and DLCO, leading to either Low Risk (CT, CPET) or High Risk (Increased Mortality). High Risk further divides into Upper Lobe (Low Exercise) and Diffuse (High Exercise), with corresponding outcomes of Mortality Benefit, QOL Benefit, QOL Benefit, No Mortality Benefit, and Increased Mortality.
RATIONALE- LVRS

- Overall results- LVRS can improve exercise capacity but no survival advantage over medical therapy.
- Subgroup with upper lobe-predominant emphysema and low baseline exercise capacity, LVRS did result in a survival advantage, improved exercise capacity and QOL.
- Subgroup with diffuse emphysema and high exercise capacity had increased mortality following LVRS without improvements in exercise capacity or quality of life.
- The other two subgroups, upper lobe-predominant emphysema with high exercise capacity and diffuse emphysema with low exercise capacity, had similar mortality with LVRS, and the former subset had some functional improvement with LVRS.
Which of the following patients, assessed following rehabilitation, would be the best candidate for lung volume reduction surgery (LVRS)?

A. A 60-year-old man with upper lobe emphysema and an exercise capacity of 30 W following rehabilitation. FEV1 is 30% predicted, and Dlco is 28% predicted.

B. A 52-year-old woman with diffuse emphysema and an exercise capacity of 50 W following rehabilitation. FEV1 is 28% predicted, and Dlco is 30% predicted. No, increased mortality

C. A 58-year-old man with upper lobe emphysema and an exercise capacity of 60 W following rehabilitation. FEV1 is 32% predicted, and Dlco is 40% predicted. No, similar mortality

D. A 61-year-old man with diffuse emphysema and an exercise capacity of 30 W following rehabilitation. FEV1 is 18% predicted, and Dlco is 15% predicted. No, excluded, better for LT
Favorable CT- Pre LVRS
CXR- Pre and Post LVRS
Figure 2: The visual computed tomography analysis of a multiplanar reconstruction (A) showed fissure integrity ≥ 90% ...
Case 5

- You are asked to evaluate a 66-year-old man who has been treated for 3 days in the hospital for community-acquired pneumonia with ceftriaxone and azithromycin.
- He continues to have daily fevers, productive cough and shortness of breath.
- Past medical history - well controlled hypertension.
- He is a former 30-pack-year smoker but quit 20 years ago, and drinks several beers on the weekends.
Case 5

- He is a farmer but has lost much of his crop this season to a rabbit infestation.
- He cares for the property himself including the farming and mowing and has been actively continuing these activities before starting to feel sick.
- His main hobbies are hunting and fishing.
Case 5

- On examination: temperature $38.3^\circ$C ($101^\circ$F), pulse 110/minute, respiratory rate 22/minute. Saturation on 3 L NC is 94%.
- He has egophony over the right lower lung field.
- White blood cell count is $8000/\mu l$ ($8.0 \times 10^9/L$) with a normal differential, platelets are $110,000/\mu l$ ($110 \times 10^9/L$). Hemoglobin is $13g/dL$ ($130 g/L$). Chemistries are normal. HIV is negative.
- Blood and sputum cultures remain negative to date. His chest radiograph is shown.
What is the likely diagnosis?

A. Plague
B. Tularemia
C. Anthrax
D. Brucellosis
What is the likely diagnosis?

A. Plague
B. Tularemia
C. Anthrax
D. Brucellosis
What should be done next?

A. Add vancomycin
B. Add gentamicin
C. Add trimethoprim-sulfamethoxazole
D. No change in therapy
What should be done next?

A. Add vancomycin
B. **Add gentamicin**
C. Add trimethoprim-sulfamethoxazole
D. No change in therapy
Tularemia-Epidemiology

- *Francisella tularensis*- aerobic, gram negative, coccobacillus
- Slow growing organism
- Zoonotic infection- glandular, ulceroglandular, oculoglandular, oropharyngeal, pneumonia, or systemic.
- Pneumonic form- more common in adults (25% of cases)
- Sources of infection- lagomorphs- rabbits, and rodents such as beavers, muskrats and squirrels
Tularemia-Epidemiology

- Can spread from direct contact (hunting, skinning, bites)
- Airborne inhalation or indirect contact, and can survive in dead animals for weeks
- Transmission via insect vectors such as ticks can also occur
- Predisposing occupations and hobbies- famers, ranchers, hunters (particularly if they skin the dead animals), animal shearers, laboratory workers and landscapers
- Geographically- found worldwide including South East Asia
- Summer months
Tularemia- Clinical Findings

- Symptoms: episodic fever, chills, anorexia, malaise, fever, headache and cough
- 3-5 days following exposure
- Radiographic findings: lobar or patchy consolidation, non-specific adenopathy, and sometimes pleural effusions (exudative with lymphocytic predominance). Cavitation less common.
- Progression to respiratory failure may occur
- Up to 50% of patients may have dermatologic findings: maculopapular, vesicular, or urticarial rashes, or erythema multiforme or nodosum
- Laboratory findings: non-specific, may have thrombocytopenia
Tularemia-Diagnosis

- Diagnosis – difficult, need high index of suspicion, take good history
- Think about tularemia in cases of unresponsive CAP
- Acute and convalescent serology can confirm the diagnosis fourfold or greater change in titers
- Gram stain and culture are rarely positive
Tularemia- Diagnosis

- Laboratory personal should be notified once an infection with tularemia is suspected because of its high virulence.
- PCR testing is available at select laboratories.
- Due to the low organism dose required for infection, potential for dissemination, and high mortality, tularemia is listed as a category A bioterrorism agent.
- Differential diagnosis - fungal infections, plague, mycobacterial infection, psittacosis, and coxiella infection.
Treatment

- Treatment with aminoglycosides (streptomycin or gentamicin) for more severe illness such as pneumonia and systemic disease
- Doxycycline or ciprofloxacin for milder disease
- Beta-lactams and macrolides are not effective
- Rare cases of meningitis may be treated with combination therapy
- With effective treatment, mortality from tularemia has been reduced from 60% to < 5%
What should be done next?

A. Add vancomycin- no, not community acquired Staph. aureus
B. Add gentamicin
C. Add trimethoprim-sulfamethoxazole- not drug of choice
D. No change in therapy- needs treatment
QUESTION 6

- A 55-year-old woman is admitted for 6 weeks of intermittent fevers, progressive shortness of breath, night sweats, a 10-lb (4.5-kg) weight loss, and a dry cough. Her past medical history is unremarkable and she takes no medications. She is an office secretary. She has no history of tobacco use and drinks alcohol only occasionally. There has been no recent travel.
QUESTION 6

- On physical examination she is in mild respiratory distress. Respiratory rate is 24/min, pulse 88/min, and temperature 38.5°C. On examination, she has no cervical adenopathy. Lung examination reveals scattered crackles without wheezes. The remainder of the examination is unremarkable. She has no clubbing. Laboratory studies reveal a leukocyte count of 14,000/mm³ (14.0 x 10⁹/L) with 20% eosinophils. Serum chemistry results are normal. Her chest radiograph and chest CT scan are shown in Figures 108-A and 108-B.
QUESTION 6
QUESTION 6

Which of the following statements regarding this patient’s condition is correct?

A. Relapses are uncommon.
B. Progression to respiratory failure is typical.
C. A history of asthma is present in nearly 50% of patients.
D. Transbronchial biopsy may show stages of diffuse alveolar damage.
ANSWER 6

Which of the following statements regarding this patient’s condition is correct?

A. Relapses are uncommon.
B. Progression to respiratory failure is typical.
C. A history of asthma is present in nearly 50% of patients.
D. Transbronchial biopsy may show stages of diffuse alveolar damage.
Rationale - CEP
RATIONALE - CEP

- Women > men
- Most cases (90%) occur in nonsmokers
- Clinical features - subacute onset of cough, SOB, and constitutional findings (fever, sweats, weight loss)
- Wheezing and a h/o asthma are present in close to 50% of patients
- Progression to respiratory failure is uncommon
- Laboratory findings - peripheral eosinophilia, anemia, elevated IgE levels, BAL eosinophil counts > 20 to 40%
- Pathology - interstitial and intraalveolar eosinophils and histiocytes with minimal fibrosis. Bronchiolitis obliterans +/- organization. Not DAD
RATIONALE- CEP Treatment

- Corticosteroids, usually excellent response in days-weeks
- Spontaneous resolution is rare
- Usually tapered over 3 to 6 months
- Relapse in > half of patients
- Maintenance treatment with low-dose oral corticosteroids or inhaled corticosteroids
RATIONALE- Acute Eosinophilic Pneumonia

- Acute
- Respiratory failure common
- Men > women
- CXR- ground-glass opacities, alveolar filling, and occasionally pleural effusions.
- Pathology - diffuse alveolar damage (if severe) with eosinophils present.
- BAL eosinophils are common, but peripheral eosinophilia is not early on
Which of the following statements regarding this patient’s condition is correct?

A. Relapses are uncommon. no, frequent
B. Progression to respiratory failure is typical. no, unusual
C. A history of asthma is present in nearly 50% of patients.
D. Transbronchial biopsy may show stages of diffuse alveolar damage. no, in AEP not CEP
QUESTION 7

- A 41-year-old woman is referred to you with a persistent, nonproductive cough for the last 3 months accompanied by a gradual increase in dyspnea on exertion. She has been treated with several courses of different oral antibiotics without appreciable improvement. The patient’s history is notable for an allogeneic bone marrow transplantation performed 11 months ago for chronic myelogenous leukemia. For the last 5 months, she has been treated for chronic graft-vs-host disease (GVHD), manifested by skin and GI complications and treated by alterations in her corticosteroid regimen.
QUESTION 7

- Her pretransplantation pulmonary function test results are normal; her current tests show an FEV1 of 1.13 L (46% of predicted), FVC of 2.11 L (71% of predicted), and FEV1/FVC of 54% without bronchodilator response.

- Physical examination is notable for a normal lung examination.
Her chest radiograph and representative high-resolution CT scan (inspiratory and expiratory images) are both interpreted as normal.

The patient undergoes a nondiagnostic bronchoscopy with BAL and transbronchial biopsies (all culture and stain results were negative).

Her hematologist requests more information, and the patient undergoes an open lung biopsy (see Figure 143-A, low power; and Figure 143-B, high power).
QUESTION 7
QUESTION 7

Which of the following best describes this patient’s disorder?

A. More commonly found in autologous compared with allogeneic bone marrow transplantation patients.

B. Corticosteroid therapy is controversial and usually results in improvement in <50% of patients.

C. Usually occurs within the first 15 days after transplantation.

D. Associated mortality rate is < 5%.
ANSWER 7

Which of the following best describes this patient’s disorder?

A. More commonly found in autologous compared with allogeneic bone marrow transplantation patients.

B. Corticosteroid therapy is controversial and usually results in improvement in < 50% of patients.

C. Usually occurs within the first 15 days after transplantation.

D. Associated mortality rate is < 5%.
Rationale- Obliterative Bronchiolitis

- obliteration of the bronchiolar lumen by concentric submucosal and adventitial scarring, with near complete destruction of the bronchiolar epithelium and sparing of the surrounding alveoli/interstitium, constrictive or obliterative bronchiolitis (OB)
• Bronchiolitis obliterans is considered a pulmonary manifestation of chronic GVHD post-HSCT—formalized by an NIH definition since 2005, recently updated in 2014.
• most common risk factor is history of prior or active chronic GVHD*
• allogeneic > autologous BMT
• The incidence of BOS is 6% in all allogeneic HSCT recipients, and 14% in those with chronic GVHD (which affects about 40-50% of allo-HSCT recipients).
RATIONALE- OB in BMT- Diagnosis

- NIH definition of the clinical syndrome (hence bronchiolitis obliterans syndrome) since it’s challenging to get lung biopsies on these patients. Definition is based on spirometric criteria showing new onset airflow obstruction:
  - \( \text{FEV1/FVC} < 0.7, \text{FEV1} < 75\% \), Decline in \( \text{FEV1} \) of >10% since pre-HCT baseline
  - Absence of infection or other etiology (ie asthma, COPD)
- Time- ~ 18 months after BMT (range 30 days- 2 years)
- Nonproductive cough, progressive dyspnea
RATIONALE- OB in BMT- Diagnosis

- PFTs- obstructive lung function, elevated RV or RV/TLC
- HRCT - “mosaic attenuation” /air trapping increased on expiration (consistent with a presumptive diagnosis of OB). ggo, centrilobular nodules, bronchiectasis (usually a late finding), or have no significant findings.
- Diagnosis may be attempted via bronchoscopy (also to r/o infection), but may require surgical lung biopsy.
RATIONAL- OB in BMT – Treatment

- **Treatment**: Current Treatment of BOS at HCT centers in the US may include the following: **FAM+LABA plus minus short course of corticosteroids**
- **Fluticasone, azithromycin, montelukast (FAM)**—this cocktail was tested in single arm multi-institutional study—FEV1 was stable at 3 and 6 months, with improved QOL and reduced systemic corticosteroid dose
- **The role of corticosteroids is controversial**—if corticosteroids are given it should be a short course, ie 4-6 week taper.
RATIONALE- OB in BMT – Prognosis

- **Prognosis**: In modern era of HSCT (patients transplanted after 2000), 2 year survival approximately 70-75%, 5 year survival 40%

- Early onset (<1 year after HSCT), severity of FEV1 decline at diagnosis, and FVC reduction are associated with worse prognosis.
ANSWER 7

Which of the following best describes this patient’s disorder?

A. More commonly found in autologous compared with allogeneic bone marrow transplantation patients. no, opposite

B. Corticosteroid therapy is controversial and usually results in improvement in < 50% of patients

C. Usually occurs within the first 15 days after transplantation. no, later

D. Associated mortality rate is < 5%. no, higher
QUESTION 8

- A 28-year-old medical resident seeks evaluation because she is 22 weeks pregnant, and an HIV-positive inpatient under her care 4 weeks ago was diagnosed with smear-positive TB last week. The patient had not been moved to respiratory isolation when he was under her care, and she also had a number of prior encounters with him, during which time she did not wear a mask. She has been feeling fatigued, but otherwise well, and denies fever, cough, hemoptysis, night sweats, or weight loss.
QUESTION 8

- Results of physical examination are unremarkable except for a soft systolic flow murmur and a gravid uterus that is appropriate size for dates. Her last negative purified protein derivative test (PPD; 0-mm induration) was 8 months ago. A 5-tuberculin unit (TU) tuberculin skin test is placed on her left forearm and develops 7 mm of induration at 72 h. A posteroanterior chest radiograph is performed with fetal shielding and is normal.
QUESTION 8

What course of action is most appropriate at this point?

A. Begin treatment with isoniazid.
B. Begin treatment with isoniazid, rifampin, pyrazinamide, and ethambutol.
C. Perform an interferon-gamma release factor assay such as Quantiferon Gold.
D. Repeat a 5-TU tuberculin skin test in 8 to 12 weeks.
QUESTION 8

- What course of action is most appropriate at this point?
  A. Begin treatment with isoniazid.
  B. Begin treatment with isoniazid, rifampin, pyrazinamide, and ethambutol.
  C. Perform an interferon-gamma release factor assay such as Quantiferon Gold.
  D. Repeat a 5-TU tuberculin skin test in 8 to 12 weeks.
RATIONALE- LTBI in Pregnancy

- 5 mm PPD- positive in setting of close contact
- Convertor
- Pregnancy- same risk as other IC convertors- 2-5% in the first 2 years and 10-20% lifetime risk
- Begin INH- especially in convertors, high risk, HIV or IS
- Category C
- Pyridoxine
- If positive PPD without other RF can wait until after 1st TM (not our patient)
ANSWER 8

- What course of action is most appropriate at this point?
  A. Begin treatment with isoniazid.
  B. Begin treatment with isoniazid, rifampin, pyrazinamide, and ethambutol.- no, for active disease and in ATS/CDC- no PZA
  C. Perform an interferon-gamma release factor assay such as Quantiferon Gold. No, will give no additional information
  D. Repeat a 5-TU tuberculin skin test in 8 to 12 weeks. No, no further information, already positive
Thank You