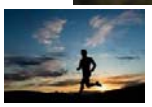
Complex TB Cases – The Triathlon

TB Nurse Case Management
Session 5
Denise Dodge & Debbie Staley
2013



Objectives

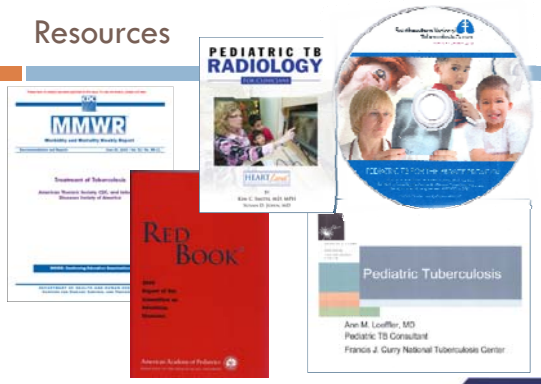
Participants will:

- be able to identify situations that may require treatment regimens different than the standard 4-drug regimens.
- be able to state circumstances that may change the presentation of TB disease.
- recognize when additional assessment is needed for failure to clinically improve, or when clinical condition declines.
- identify when to initiate interventions utilizing options in the "TB Control Law Guidebook", based on state code and regulation.

Baby J

Case 1

Resources



May 23 - Memorial day weekend

The phone rings, it's 1:30 PM

- A local pediatrician office calls to inform you of TB infection in an 8 month old infant. The TST is 7mm

What sort of questions you would ask?

Discussion

- Why was the TST done?
- Is there any risk of being infected?
- Is the baby healthy? Does the baby have symptoms?
- What is the doctor's plan?
- Do you need assistance with providing treatment?
- Is this TB infection or TB disease?
- Has a CXR been done, and if so, what are the results?
- Collect demographics

May 23 - Memorial day is this weekend

15 minutes later
The phone rings, it's 2 PM

- As soon as you hang up the phone you receive a call from the mother of baby J
- She is worried about baby J and has questions about TB

What sort of questions you would ask?
What are the teaching points?

Discussion

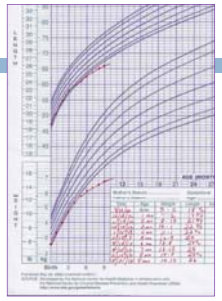
Emphasize the importance of asking questions and digging deeper

- Answer the mother's questions first
- How has baby J has been feeling lately?
- Why did the baby go to the doctor?
- Ask about the family. Is there anyone else in the house who is ill?
- Is the baby adopted or foreign born?
- Teach about the difference between TB and LTBI
- Plan to keep in touch

Going back in time to May 20th

Now for the rest of the story

Baby J status/ 8 mos old



- Delayed Growth
- Unable to roll over
- Lethargic/ listless
- Not interested in play
- Low grade fevers
- Persistent weak cough
- Supraclavicular adenopathy
- Lymphadenopathy is the most common clinical sign in pediatric patients

Baby J/ Visit to pediatrician/ May 20, 2013

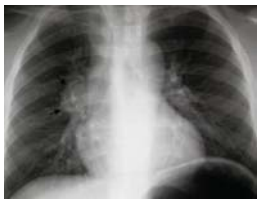
- Inspiratory wheezing, upper and mid lung
- Initial diagnosis: r/o bacterial pneumonia
- Treatment: Bactrim pediatric
- TST placed
- CXR today, CT if indicated
- Scheduled I&D of lymph node in two days
- Atypical infections, such as M. *bovis* can look identical to M. *tb*

Findings - May 22, 2013

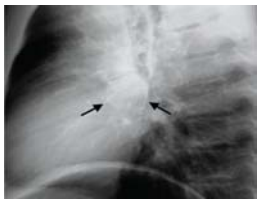
- CXR done – Hilar lymphadenopathy
- PPD read: 4mm (theoretically negative)
- Not feeding
- I & D: results pending, gram stain and AFB ordered
- Infant increasingly lethargic – stat head CT ordered
- Hospitalized

Imaging – Chest: PA and lateral

CXR: PA view
Hilar lymphadenopathy.



CXR: Lateral view
Rounded lymph node



Do a PA and lateral film for pediatric patients to get a better view of the hilar lymph node

Miliary Pattern

Imaging – Head CT or MRI

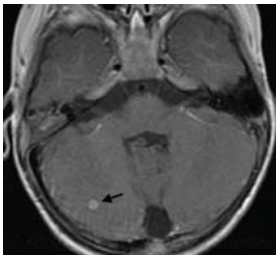
Tuberculoma is most common form of localized disease

Ring Enhancing lesions

Cerebral Hemisphere most common site

Asymetrical Vascular Enhancement

Usually 2 – 6 months after infection and most common in children under 2 yrs of age



THIS IS WHEN YOUR PHONE RINGS

Would your approach be different now?

Be more aggressive and dig deeper

- Is treatment being started?
- How long has the baby been ill?
- What has the mother told you?
- Request medical records
- Do a home visit. The source of a young child's illness is likely in the home, over 75% are.

Diagnostic Challenges

- Otherwise healthy infants
  - Known contact with an adult case of TB
  - Positive TST
  - Suggestive signs on a chest x-ray
- 'Typical' TB symptoms are often not present
  - Change in behavior
  - Failure to thrive (growth delay)
  - Unexplained lymphadenopathy (firm, nontender)
  - Shallow, weak, dry cough (children are poor TB transmitters
  - They often do not improve long term with 'common' antibiotics
- Age is the most important risk factor for progression to disease

Risk of progression to TB disease in untreated pediatric patients with LTBI

- The lung focus may resolve without detection in primary disease
- The CXR appearance of primary TB typically includes enlargement of regional lymph nodes
- Lymphohematogenous spread is typical and can result in disseminated disease

Age of infection	Risk of TB disease
Birth – 12 months	43 - 50%
1 – 5 years	20 – 25%
6 – 10 years	2%
11 – 15 years	16%

Proving TB disease with a + *M.tb culture*

- Sputum
  - Generally better yield than Gastric Aspirates (GA)
  - Difficult for those under 5 years, limited experience with induction
  - Induced sputum (IS) can be attempted if no active cough
    - Consider albuterol for 5 minutes
    - 15 minute induction with 5% hypertonic solution
      - Wheezing, Vomiting
      - Increased coughing, Epistaxis
- Often move forward without culture confirmation if
  - Abnormal CXR, TST +, and if reported as a known contact to TB (classic diagnostic picture for suspicion of TB in pediatric patients)

Proving TB disease with a + *M.tb culture*

- Gastric Aspirate
  - Hospitalization generally required over three days
    - Early morning
    - NG tube inserted upon waking
    - Invasive and frightening
    - Expensive
  - Study 2005 – compared yield between IS and GA
    - 3 GA = one IS (64-66%)
    - 3 IS yield much better results (87%)

Bottom Line – IS have better yield than GA

Baby J family/ Today is 5/24/13

- Born in the United States, September 13, 2012
- January 2012 - Parents arrive from Libya
  - TB evaluation upon entrance, both IGRA positive
    - Mother: CXR nodular densities LLL (stable), asymptomatic sputum X3 smear and culture negative, INH 6 months
    - Father: CXR negative, asymptomatic, INH 9 months
- Maternal grandmother arrives in U.S. late July 2012
  - No medical evaluation – Visitors visa
  - Overstays visa

From a public health perspective….

- Is this a source or contact investigation?
- What level priority is it? Not as high as a smear positive, culture positive case
- What are your first steps?
  - Thorough s/s review of immediate family
  - Always be suspicious of those you don't 'see' present at the time of the visit
  - Grandmother was the source case

Case management challenges

- Treatment regimen
- DOT
- Assessing for side effects
- Allaying fear and suspicion
- Observing and documenting improvement

Treatment Regimens and DOT

- RIPE
  - Normally well tolerated
  - May exclude EMB if resistance is not a concern
  - Give1 hour before or 2 hours after a meal
  - Do monthly weights and adjust dosages as weight changes
  - Crush as fine as possible before mixing
  - Don't mix ahead of time
  - Expect to change strategies frequently

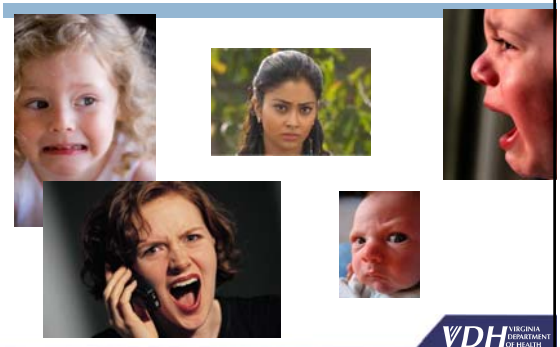
Rifampin and Isoniazid

- Rifampin
  - Mix thoroughly in very small amount of food
  - 150 mg capsule
  - RIF suspension is stable 4 weeks, shake before using, not refrigerated, capsules are preferred
  - 600 mg reconsitituted in 10ml of sterile water for infusion
- INH
  - Rarely requires B6, unless breastfed
  - 100 mg tablet
  - INH solution, 50mg/5ml, not refrigerated; can cause gastric upset, crushed tablets are preferred
  - INH 100mg/ml for infusion

Pyrazinamide and Ethambutol

- Pyrazinamide
  - Crushed tablets only
  - Lower frequency of side effects than with adults
- Ethambutol
  - No widely standardized test available to test visual acuity
  - Weigh risk/benefit for use
  - Be alert for changes in developmentally appropriate visual response

Allaying fear and suspicion



Mr. S

Case 2

Resource

Mr. S, 32 yr., from Vietnam, IT employee

- Single, multiple sexual partners
- Past substance abuse, current alcohol use
- PCP seen for
  - Weight loss, 17 lbs. in 2 months
  - Fever, 99° to 101° F
  - Nagging cough, productive in A.M.
- Chest x-ray abnormal, not consistent with TB (RLL infiltrate)
- Treated with 10 days of levoquin
- Return in 2 ½ weeks scheduled

Return visit to PCP 6 weeks later

- Respiratory symptoms improve x 6 weeks, then recur
- Returns to PCP
- Phlegm now blood streaked
- Repeat chest x-ray unchanged
- Respiratory culture with gram stain collected
- Azithromycin prescribed
- Told to call if symptoms don't improve

2 Weeks Later

- Cough persists
- Calls to PCP
- Office visit
  - Gram stain/respiratory culture negative
- Referred to a pulmonologist
- Appointment scheduled 1 month later

At the pulmonologist…

- Symptoms
  - Worsening cough
  - Fevers
  - Continued weight loss; 3 more lbs
  - Decreased appetite
  - Night sweats
  - Missing days at work
- MD looks at 2 prior chest x-rays and orders a CT scan
- Client refuses bronch due to fear and poor insurance
- Referral to health dept. as TB suspect

Call to refer to health department

- When do you plan to see the client? Within 3 days, or that day.
  - TB risk assessment, get medical record, sputum for AFB, explain role of the HD, discuss infection control measures
- What are the additional tests needed? HIV, TST. CXR?
- What other risk factors do you think the client might have? HIV?
- The client is worried about his poor insurance coverage; what do you tell him about potential charges? Don't worry about anything; eligibility will be done and a sliding scale applied.

Discussion

- See ASAP – this looks like TB! Contact same day; see in 1-3 business days per nursing guidelines for TB case management
- Get demographic/contact information
- Explain health department role
- Encourage to stay home
- TB risk assessment
- Arrange testing
  - Sputa x 3 for AFB and culture, etc.
  - HIV
  - TST or IGRA
  - LFTs because of current alcohol use
  - Chest x-ray (obtain prior films)
- Obtain medical records
- Who are the sexual partners?
- No charge for evaluation of TB suspects or contacts per Code of Virginia and Eligibility Guidelines

Visit with client the next day

- Take everything needed
- TST / IGRA done
- Sputa collected
- Weighed – 140 lbs
- History completed
  - Identify past heroin use
  - Identify sexual preference, MSM, name of partners unknown
  - Gay bar rendezvous weekly
- TB education done
- HIV drawn

Results – 2 days later

- 1st smear 1+
- TST negative/0 mm
- Chest x-ray with ground glass appearance throughout lung fields; RLL infiltrate resolved
- Results sent to pulmonologist and office called/message left
- Co-worker suggests an IGRA, given Hx of BCG

Discussion

- What does the 0 mm TST reveal?
  - TST might only reflect poor immune function
- Is this chest x-ray improved?
  - no
- Is this chest x-ray consistent with TB?
  - For immune suppressed, yes
- Would an IGRA be a good idea?
  - No, all signs point to immunosuppression (chest x-ray, TST, risk factors for HIV)

Additional information and orders

- Subsequent 2 sputa
  - Smear negative and +/-
- MTD positive
- Pulmonologist returns call after MTD positive results faxed
  - TB meds ordered
    - INH 300 mg po daily
    - RIF 600 mg po daily
    - PZA 1500 mg po daily
    - EMB 1000 mg po daily

Any comments?

- What should be in the discussion with the pulmonologist?

Discussion

- Dosing of EMB; EMB dosing corrected to 1200 mg po daily
- Share risk factors for HIV, and that results are pending
- Ask what the MD has told the client
- Isolation needed
- Negotiate treatment plan / who will do what?
  - Clinical evaluations
  - Labs – baseline and ongoing
  - Sputa
  - Assure HIV done if not previously performed
- Advise of HD services
  - DOT (no order needed/don't need to ask unless medical Hx ➡ concern)
  - Vision monitoring
  - Home isolation
  - Contact investigation

HIV results positive

Resources

How will case-management change?

- What other resources would be helpful?
- How do you tell the client of HIV results?
- Is there a change needed in the TB regimen?

Discussion

- Resources
  - HIV/STD program
  - DIS
    - For visit with TB PHN to share results with client
    - For HIV contact investigation/partner notification
    - Eventually for ADAP program
- Connect to ID clinic at local teaching hospital
- No change in treatment now/not on ART

HIV management

- Client with appointment in ID clinic in 2 weeks
- CD4, viral load and other related tests planned for this week
- Because of the delay in ID appt. the PCP questions starting ART now
- All other case management activities continue

Discussion

- ART should wait until HIV labs are known; the timing of start of ART depends on client evaluation and HIV labs, especially the CD4 count

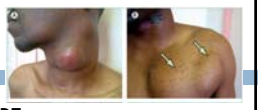
ART in the management of TB disease

- Complicated by
  - ART interactions with rifamycins, especially
    - Protease inhibitors (PI)
    - Non-nucleoside reverse transcriptase inhibitors (NNRTI)
  - Overlapping toxicities
  - Review of other medication interactions complex
- Rifabutin usually substituted for rifampin
- Review with TB Medical Consultant

IRIS - Immune Reconstitution Syndrome

- IRD – Immune Restoration Disease
- After ART is started there may be an exuberant immune system response to TB bacilli
  - Paradoxical reaction - Worsening of clinical symptoms of TB
  - Unmasking – Initial clinical symptoms related to TB
- Predictors of IRIS
  - More common with CD4 <50 and high viral load
  - Improvement of CD4 and viral load once ART is initiated
  - IF ART is initiated less than 30 days after TB treatment began
  - High burden of TB disease
- Explains the importance of ruling out TB before HIV treatment is initiated

Symptoms of IRIS



- Within 3 months of starting ART
- Initial TB symptoms worsen
  - Large adenopathies, including abdominal
  - Cold Abscess
  - Return of night sweats, fever, poor appetite
  - Worsening CXR with new or worsening respiratory symptoms, cavity formation
  - New or worsening CNS
  - Miliary TB with large nodules
  - Sputa remain negative if conversion has occurred

Treatment

Do Not Stop TB or ART meds

- Corticosteroids
- NSAIDS
- Drainage?
- Additional interventions dependent upon site involved
- Can be life threatening

Client states "you're killing me"

- Client refuses all medication
- What do you tell the client?
- How do you discuss the refusal?
- Stops being available for DOT

Discussion

- Review Sx
- Give opportunity to vent
- Education; re: IRIS, signifies an immune system being restored
- Discuss options
  - TB drugs not negotiable
  - Encourage
  - Offer some hope; 2 TB drugs can be stopped after 8 weeks
- Work with ID clinic
  - Discuss options for side effects
  - Treatment of IRIS
  - Collaborate with HIV case manager to assure consistent message

Client no longer available for DOT

- Three doses of DOT missed
- Refuses to provide sputa
- Also not adhering to home isolation
- What can be done?

Discussion

- Talk with the client
  - Address concerns
  - Reinforce need for isolation, potential for drug resistance
  - Review agreements that were signed (DOT and Isolation)
  - Document, document, document
- Code of Virginia
- TB Law Guidebook – letter templates available
  - Counseling Order Letter
  - Examination Request Letter
  - Outpatient treatment Order
  - Emergency Detention Order
- Work with health director and TB Control Program

Contact investigation unfolds…

- IT workplace; 300 employees
- Gay bar weekly
  - Multiple partners
  - One regular weekly partner – only nickname is known
- Hookah bar weekly – the Crystal Cathedral

Discussion

- How to approach contact investigation in uncomfortable or unsafe places
  - Partnership with DIS or Community Based Organizations
  - Approach management/evaluate each setting
    - Provide education
    - Get their input on how to best reach regular customers
  - Prioritize the locations and the people at those places
    - Attempt to identify any symptomatic
- TB elimination will require reaching out to non-traditional sites of transmission

The Outcome

- A counseling letter is delivered
- Face to face counseling preferable, or mail to last known address
- Consider certified mail and regular delivery together
- Client returns to treatment after 1 week missed therapy
- Rest of treatment course uneventful
  - IRIS resolved
  - Treated for 26 weeks
  - Contact investigation continues ☺

Ms. K

Case 3

Resource

Ms. K, female, age 71, today is 5/31/13, 4:00 P.M. What topics might be covered in this phone call?

- Infection Preventionist from local hospital calls with a referral on TB suspect, Ms. K
- AFB smears are 4+, and 3+ twice
- Other diagnoses
  - End-stage renal disease
  - Insulin dependent diabetes mellitus

What topics might be covered in this phone call?

- Airborne isolation (Aii), a.k.a. "negative pressure"
- Need for "TB Treatment/Discharge Plan" completion
- All pertinent information available on TB intake form
- Treatment plan for the TB drug regimen; TB drug start date
- Is the person on dialysis?
- Hx of prior TB, prior + TST or IGRA, Tx for LTBI, NTM diagnosis?
- Arrange hospital visit if possible
- Potential discharge date

This information is discovered in the call; what is your input or concern now?

- Suspect was in airborne isolation
- HIV had not been done due to client's age
- Wt. is 52 kg
- Patient is on dialysis, and has been "for months"
- TB medication was started on 5/15/13
  - INH 300 mg. tablet, po, daily
  - Rifampin 300 mg. capsule, po, twice daily
  - Pyrazinamide 500 mg. tablet, po, twice daily
  - Ethambutol 400 mg. tablet, po, twice daily

Discussion

- What about the TB drug regimen?
  - Doses should be given once daily, all simultaneously
  - And in this case?
- Encourage HIV testing
- Was airborne isolation in place from first contact forward, or after positive AFB smears found?
- May address delay in health department notification

Renal Insufficiency Considerations, page 63-64 (1)

- Related to Toxicity:
  - Dependant on creatinine clearance of individual
    - < 30 ml/minute – dosing adjustment recommended
    - >30 ml/minute – no recommendation for dosing adjustment, but measurement of serum drug concentrations recommended to detect potential toxicity
  - INH and RIF are metabolized by the liver; no dosing adjustment needed
  - PZA also metabolized by liver, but metabolites excreted by kidneys
  - EMB cleared by kidneys
  - The recommendation is to alter the dosing interval for EMB and PZA

Renal Insufficiency Considerations (2)

- Effect of Dialysis:
  - PZA removed significantly,
  - INH and EMB to a lesser degree (not significant)
  - RIF not affected
- Recommendation: Dose TB meds AFTER dialysis

"Treatment of Tuberculosis," page 64, Table 15

TABLE 15. Dosing recommendations for adult patients with reduced renal function and for adult patients receiving hemodialysis

Drug	Change in frequency?	Recommended dose and frequency for patients with creatinine clearance <30 ml/min or for patients receiving hemodialysis
Isoniazid	No change	300 mg once daily, or 900 mg three times per week
Rifampin	No change	600 mg once daily, or 600 mg three times per week
Pyrazinamide	Yes	25–35 mg/kg per dose three times per week (not daily)
Ethambutol	Yes	15–25 mg/kg per dose three times per week (not daily)
Levofloxacin	Yes	750–1,000 mg per dose three times per week (not daily)
Cycloserine	Yes	250 mg once daily, or 500 mg/dose three times per week*
Ethionamide	No change	250-500 mg/dose daily
p-Aminosalicylic acid	No change	4 g/dose, twice daily
Streptomycin	Yes	12–15 mg/kg per dose two or three times per week (not daily)
Capreomycin	Yes	12–15 mg/kg per dose two or three times per week (not daily)
Kanamycin	Yes	12–15 mg/kg per dose two or three times per week (not daily)
Amikacin	Yes	12–15 mg/kg per dose two or three times per week (not daily)

"Treatment of Tuberculosis," TB Drug Regimens, pg. 3

TABLE 2. Drug regimens for culture-positive pulmonary tuberculosis caused by drug-susceptible organisms

Initial phase			Continuation phase			Range of total doses (minimal duration)	Rating† (evidence)‡	
Regimen	Drugs	Interval and doses§ (minimal duration)	Regimen	Drugs	Interval and doses¶ (minimal duration)		HIV−	HIV+
1	INH RIF PZA EMB	Seven days per week for 56 doses (8 wk) or 5 d/wk for 40 doses (8 wk)**	1a	INH/RIF	Seven days per week for 126 doses (18 wk) or 5 d/wk for 90 doses (18 wk)††	182–130 (26 wk)	A (I)	A (I)
			1b	INH/RIF	Twice weekly for 36 doses (18 wk)	92–76 (26 wk)	A (I)	A (II)§§
			1c¶¶	INH/RIF	Once weekly for 18 doses (18 wk)	74–58 (26 wk)	B (I)	E (I)
2	INH RIF PZA EMB	Seven days per week for 14 doses (2 wk), then twice weekly for 12 doses (6 wk) or 5 d/wk for 10 doses (2 wk),** then twice weekly for 12 doses (6 wk)	2a	INH/RIF	Twice weekly for 36 doses (18 wk)	62–58 (26 wk)	A (II)	B (II)§§
			2b¶¶	INH/RIF	Once weekly for 18 doses (18 wk)	44–40 (26 wk)	B (I)	E (I)
3	INH RIF PZA EMB	Three times weekly for 24 doses (8 wk)	3a	INH/RIF	Three times weekly for 54 doses (18 wk)	78 (26 wk)	B (I)	B (II)
4	INH RIF EMB	Seven days per week for 56 doses (8 wk) or 5 d/wk for 40 doses (8 wk)**	4a	INH/RIF	Seven days per week for 217 doses (31 wk) or 5 d/wk for 155 doses (31 wk)††	273–195 (39 wk)	C (II)	C (II)
			4b	INH/RIF	Twice weekly for 62 doses (31 wk)	118–102 (39 wk)	C (II)	C (II)

How should the current treatment regimen be addressed?

- The infection preventionist is reluctant to discuss the regimen with the physician prescriber
- The client has been on this TB treatment regimen daily for 11 days, with no reduction in clinical symptoms or sputum smear positivity (still 3+ and 4+)
- Hospital discharge is not expected in the near future because family says they can't care for the client at home

Discussion

- Call the prescribing physician and discuss the regimen
- Discuss with your health director or health department TB clinician
- Ask for all labs and review the creatinine clearance or glomerular filtration rate
- Call TB Control Program and ask advice
- Call TB Control Program and request to speak to a TB medical consultant

Importance of Interviewing

- This person is still in the hospital
- The interview:
  - Builds rapport
  - Opportunity for education and to gain more TB exposure and past treatment information directly
  - Elicits solid information to pursue a contact investigation in a setting with high risk persons (dialysis)
  - Provides a more complete contact list outside of dialysis
  - Provides information to assist in determining infectious period
  - Elevates the importance of health department involvement

Client progress over the next 10 days; what might be suspected/why no improvement?

- Sputa remain at 3+
- The regimen has been changed to the recommended three times a week dosing intervals, with the recommended doses and no split dose administration
- The clinical picture is essentially unchanged after 3 weeks of treatment

Discussion

- The client has an NTM, not TB (but wouldn't growth and ID occurred by now with a rapid grower?)
- The client has drug resistance issues
- The client may have absorption issues due to the DM
- The client may have absorption issues due to food, other medications, or other clinical conditions
- Non-adherence

Interventions

- Call the lab and check culture growth
- Were serum drug levels done at 2 weeks (DM)?
  If not, suggest they be done now
- Evaluate TB medication administration –
  - On empty stomach?
  - Drug interactions?
  - Calcium containing products?
- Evaluate medication administration practice (DOT?)
- Review co-morbidities, diarrhea, vomiting, etc.

What is discovered; what should be recommended?

- Lab reports M.tb positive culture
- Nausea was an issue, so TUMS were being given immediately before each dose
- Increasing joint pain reported

Recommendations

- Stop the TUMS administration
  Calcium products may interfere with absorption!
- Serum drug levels drawn
- Suggest uric acid be drawn
- Suggest use of aspirin or other NSAID for joint pain

Joint pain and PZA

- Uric acid level part of baseline TB lab panel
- Increase in uric acid expected with PZA, though usually asymptomatic
- Renal insufficiency can contribute to uric acid rise
- Allopurinol Rx an option
- May require that PZA be discontinued
- If initial phase not complete with PZA, requires treatment for 39 wks. (9 months)

Discoveries and follow-up; thrice weekly

- Pansensitive
- INH level 4.8 mcg/ml (9-18 mcg/ml expected)
  - Dose adjustment ↑INH to 1200 mg. po three x a week
- RIF level 3.0 mcg/ml (8-24 mcg/ml expected)
  - Dose adjustment ↑ RIF to 900 mg. po three x a week
- Improvement in smear positivity to 1+ within a week
- Repeat serum drug levels both within expected range
- Joint pain relieved with ibuprofen

Slow Response – 4 to 6 weeks of treatment

- Definition:
  - **Sputum smear (+) <u>not decreasing</u>**
    - adequate decrease is:
      - 4+ to 2+
      - 3+ to 1+ or,
      - 2+ or 1+ to smear negative
  - **<u>No improvement</u> in TB symptoms**
    - no weight gain
    - no reduction in cough
    - persistent fever, or
    - worsening of chest x-ray if performed

Medically ready for hospital discharge; planning for dialysis and release from isolation

- Still smear positive, but +/- and 1+
- Symptoms are improved –
  - Decreased cough
  - Weight gain of 3 lbs.
  - Resolution of fever and night sweats
- On treatment for 5 weeks
- What is the criteria for release from isolation?
- What is the plan for dialysis?
- Does the dialysis plan effect the discharge plan?

Isolation and congregate settings

- "Controlling Tuberculosis in the United States," Nov. 4, 2005, pg. 9, Box 3
  - 3 consecutive negative AFB smears
  - Collected at least 8 hrs. apart
- Dialysis could still be arranged at the hospital with appropriate Aii until release from isolation

The course is uneventful, until…/ What's up? What to do?

- Smear conversion occurs by 6 weeks (2 weeks after dose adjustment and correction of administration practices)
- Dialysis is now at the regular dialysis center (no Aii)
- Sputa continue to be collected to document culture conversion
- One sputa in week 10 returns AFB smear 1+

Interventions and Possibilities

- Revert dialysis to hospital Aii facility
- Possibilities
  - Treatment failure
  - + smear reflects dead organisms
  - Non-tuberculous mycobacterium (NTM)
- Collect series of 3 sputa, 8 hrs. apart, HCW observed
- Would an MTD "rapid test" be helpful?

Discussion

- Have to assume the worst and move to Aii
- Evaluate clinically; is clinical progress still evident?
- Won't know if dead organisms until culture final
- NTM ID likely back much sooner
- If 3 sputa all smear negative, move to regular dialysis if clinical improvement still clear
- MTD not helpful; already know it is M.tb

Uneventful course going forward …

- Cultures converted by day 55 of treatment
- The sample with 1+ smear was identified as M. *gordonae*, a common NTM contaminant
- Completed 26 weeks of treatment…is that right?

…the end of the story

Discussion

- Extend treatment due to absence of clinical improvement and poor serum drug levels
- In other situations, if clinical improvement has occurred, extension of treatment might not be needed


Questions?
VDH
VIRGINIA DEPARTMENT OF HEALTH