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Pediatric TB for the Private Provider #3

Clinical Manifestations of Pediatric TB

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This transcription is from the question and answer session which immediately followed the original presentation and is best read within that context. Only minor edits have been made to facilitate learning and understanding.

1 – When there is no bacteriological confirmation of TB would a CT guided biopsy of the lymph node increase the yield and provide a bacteriologic diagnosis?

Yes, that definitely would increase the yield. However, a biopsy can be a very invasive procedure. We take that into consideration when working with children. General anesthesia is needed in a biopsy of the hilar lymph node. That type of procedure is quite invasive. It's a different thing when you are doing a biopsy of a superficial lymph node compared to doing a biopsy of the hilar lymph node.

It is not uncommon to depend on the isolates of the source case for providing the correct treatment for the kid. This is why I encourage source case investigations. This reinforces the need for finding the source of the child's disease.

2 – The literature supports the use of Ethambutol in children until drug susceptibilities are available even though visual acuity is not measured. When would Ethambutol not be used in the initial regimen?

In general, in pediatrics we can get away with three drugs, INH, Rifampin and Pyrazinamide. We don't use Ethambutol all the time for several reasons. The most common reason is because pediatric cases have "paucibacillary" disease (low bacillary count). This means that they don't have many TB bacteria in the lungs which allows a three drug regimen to successfully treat a child without the risk of developing resistance. We have done studies in pediatrics and three drugs is an acceptable regimen when a resistant strain is not suspected.

Another reason is that it is hard to evaluate the visual acuity in young children. If we have to use Ethambutol we would refer them to an ophthalmologist for a visual exam. It is not an easy task to accomplish.

Some pediatricians are not aware that as children get older a regimen that includes Ethambutol is preferred. I would normally start a child who is 15 yrs old on Ethambutol unless we have susceptibilities available that show that the isolate is pan sensitive. In that case a three-drug regimen would be correct.

In young children, if you know who the source case is, and if the isolate from the source case is pan susceptible you do not have to start Ethambutol. You would presume that the organism the child has is the same as the isolate from the source case.

3 – The use of a urine culture may be helpful in the diagnosis of miliary TB in children. Is that true throughout the lifespan?

When you are suspecting disseminated TB I believe you can. This strategy can also be used for adults. In children we have good success.

4 – When is the ideal time to do the second TST on a child in a contact investigation?

The CDC recommendation is 8-10 weeks after the last exposure, not necessarily 8-10 weeks after the last test. The date of last exposure is the most important date to consider in determining the date for the second test. 90% of contacts will become positive, if infected, after 8-10 weeks however, we have seen conversion take up to 10-12 weeks. If a contact to an active case is younger than 5 years of age they should be started on INH for the window period (the period in between the first and second test) until they get evaluated with the second test.

5 – At what age does a skin test become reliable in an infant?

We don't know exactly. You can do it as early as a few days of life. Age is not a contraindication for a TST. A positive TST is a true positive result. I have seen a positive TST at 5-7 days of life. If it is negative you need to ask yourself this question. Is the result negative because it truly is negative, or is it negative because the child does not have a fully mature immune system that will recall the infection? We don't know the exact age that the TST becomes a certain or accurate test.

6 – If you are evaluating foreign-born children for LTBI or disease, do you recommend doing a two-step test?

No, that is not recommended. It is very hard to get the patient to come four times to get the TST done. Turning a two visit test into a four visit test is a burden on the family.

If you do a TST on children who have just arrived in the United States they could still be in that window period of being infected and not converting. In this circumstance it might be wise to do a two-step. Some pediatricians who care for foreign-born, adopted children wait a couple of months before doing the TST. They wait for the incubation period to pass before doing the TST.

7 – Would you do a chest x-ray in a young child who presents with wheezing?

Actually that is a good question for a general pediatric practice. On first time wheezers we do a chest x-ray most of the time unless it is clearly reactive airway disease, although this would be difficult to determine the first time you see the child. If you give them Albuterol and they respond nicely (the wheezing stops), some people will not do a chest x-ray. If they don't respond, then you would have another indication to do a chest x-ray. However, we wouldn't do a chest x-ray on a known asthmatic every time they wheeze.

8 – How common is an M. bovis diagnosis and do we treat it the same as M. tuberculosis?

It is not very common in the United States. It is more common in certain regions and among immigrants. Most of the time it is attached to unpasteurized milk. There are more cases in states that have a higher number of immigrants. In Mexico and Central America there are some foods, such as a cheese, that are made from unpasteurized milk. In these communities there should be an increase in suspicion about the possibility of M. bovis. This is one reason why it is very important to ask about dietary habits.

No, we do not treat *M. bovis* the same. *M. bovis* is inherently resistant to PZA.

9 – Is it legal for parents to refuse LTBI treatment for their children and what are some of the strategies that you would use to break through that barrier?

Yes it is legal to refuse treatment. The person with LTBI is not infectious and not a danger to society. We can't force them to be treated. Pediatricians are a little more aggressive and press the issue when trying to get the medication into a child. This is especially true in high-risk situations. Children that are young, or who have been exposed to active cases of TB are of particular concern. We don't leave a way to refuse. However, even if we have explained the benefit of the treatment and if the parents still refuse, we have them sign a paper that explains the consequence of that refusal.

We try to explain and help them balance the risk of progression to miliary TB with the risk of side effects. Children tolerate INH very well. We try to put that graphic picture into the parents' minds.

People more resistant to taking medication are usually immigrants. They don't believe that the positive TST is a true positive. They have never heard why LTBI treatment is needed in their countries of origin – there is no such thing. You can't blame them, they just haven't heard it before. Education is vitally important. Teach them about the pathogenesis of TB, how it progresses to active disease and why it is easier to treat now rather than later.