

EPI CONNECTIONS

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A Monthly Newsletter of the Communicable Disease Division

Latent Tuberculosis: To Treat or Not to Treat

Latent tuberculosis infection (LTBI) is an asymptomatic state in persons infected with *Mycobacterium tuberculosis*. For adults with untreated LTBI and intact immunity, the risk of developing symptomatic TB disease is 5-10% over a lifetime, with about half the risk in the first 1 to 2 years after infection. For persons with HIV co-infection, the risk increases to 5-10% per year. Infants and young children with LTBI are also at high risk for progression to active disease. Data suggests untreated infants less than 1 year of age with LTBI have a 25-40% likelihood of developing active TB. The risk for progression gradually decreases through childhood and then increases again as children enter puberty. Infants and young children are more likely than older children and adults to develop life-threatening forms of TB, namely meningal and disseminated disease, and children with LTBI have more years at risk to develop active TB.

Studies have shown that providing LTBI treatment can prevent re-activation with 70-90% efficacy in children and 60-80% in adults. LTBI treatment is recommended for all patients who have a positive TB skin test (TST) reaction and who are younger than 35 years old, particularly young children and adolescents. For patients with a positive TST who are older than 35 years but without a high-risk for progression to active TB (e.g. recent infection, immunocompromised, diabetes, etc.), the clinician should weigh the risks of progression to active TB against the risks of isoniazid (INH) related hepatotoxicity. Treatment is always optional for the patient, even if strongly recommended, and they must be willing to complete a full course of therapy. For individuals applying for permanent U.S. residency, the U.S. Citizenship and Immigration Service (USCIS) does not require LTBI treatment for individuals with a positive TST and normal chest x-ray. Although identification and treatment of LTBI is a high priority in the United States, LTBI is generally not identified and treated in high-prevalence countries where detection and complete treatment of active disease is the top priority.

Active TB disease is found in about 2 per 1,000 asymptomatic, high-risk adults with positive TST. Most of these cases will have minimal pulmonary TB with negative sputum acid-fast bacillus (AFB) smears and positive sputum cultures. Although it is important to detect and treat these rare active TB cases early, the primary reason to test high-risk populations for LTBI is to prevent future cases of active TB. Because of these rare cases of active TB, any persons with a positive TST should have a chest x-ray. Any radiological finding in these patients that is compatible with active or inactive TB should be evaluated for active TB before considering treatment for LTBI.

Latent TB, continued on page 2

H1 Flu Strains Show Widespread Resistance to Oseltamivir

Influenza activity has been low in the United States, Colorado, and Boulder County thus far this season. To date, Boulder County has seen 3 hospitalizations due to influenza, with another 11 reported around the state.

Early-season surveillance, however, indicates that there are a high number of influenza A (H1N1) virus strains resistant to the antiviral medication oseltamivir. Therefore, the Centers for Disease Control and Prevention (CDC) has issued interim recommendations for antiviral treatment and chemoprophylaxis of influenza during the 2008-09 influenza season. When influenza A (H1N1) virus infection or exposure is suspected, zanamivir or a combination of oseltamivir and rimantadine are more appropriate options than oseltamivir alone.

In Colorado, the most recent sub-typing results from the state laboratory indicate that both influenza A (H3N2) and A (H1N1) viruses are circulating, and there has been little influenza B virus detected so far. However, the proportion of influenza A (H1N1) viruses among all influenza A and B viruses that will circulate during the 2008-09 season cannot be predicted and will likely vary over the course of the season and among communities.

The 2008-09 influenza vaccine is expected to be effective in preventing or reducing the severity of illness with currently circulating influenza viruses, including oseltamivir-resistant influenza A (H1N1) virus strains. Preliminary data indicate that oseltamivir-resistant influenza A (H1N1) viruses do not cause different or more severe symptoms compared to oseltamivir-sensitive influenza A (H1N1) viruses.

CDC Interim Recommendations

- If a patient tests positive for influenza A, use of zanamivir should be considered if treatment is indicated.
- Oseltamivir should be used alone only if recent local surveillance data indicate that circulating viruses are likely to be influenza A (H3N2) or influenza B viruses.
- Combination treatment with oseltamivir and rimantadine is an acceptable alternative and might be necessary for patients that cannot receive zanamivir, (e.g., patient is <7 years old, has chronic underlying airways disease, or cannot use the zanamivir inhalation device), or zanamivir is unavailable.
- Amantadine can be substituted for rimantadine if rimantadine is unavailable.

Resistance to Oseltamivir, continued on page 2



Latent TB continued from page 1

Resistance to Oseltamivir continued from page 1

Figure 1. Guidelines for treatment of LTBI

Treat if TST reaction is 5 mm or greater	Age <35 years	Age 35> years
Radiographic evidence of old, healed TB**	Treat	Treat
Close contact with a person who has pulmonary or laryngeal TB disease**	Treat	Treat
HIV infection or at risk for HIV infection but refused testing	Treat	Treat
Taking immunosuppressants (e.g. TNF-alpha inhibitors, chemotherapy, high doses of prednisone, etc.)	Treat	Treat
Treat if TST reaction is 10 mm or greater	Age <35 years	Age 35> years
Planning to start taking immunosuppressants (e.g. TNF-alpha inhibitors, chemotherapy, high dose prednisone, etc)	Treat	Treat
Medical risk factors for TB, other than HIV infection	Treat	Treat
Drug injection in HIV-seronegative persons	Treat	Treat
TST conversion within past 2 years (> 10 mm)	Treat	Treat
Currently living in a high-risk congregate setting (e.g., nursing home, correctional facility, homeless shelter)	Treat	Treat
Past history of living in a high-risk congregate setting (e.g., nursing home, correctional facility, homeless shelter)	Treat	If no risk for progression, don't treat
Birth or residence in high-incidence country/region; less than 5 years in U.S.	Treat	Treat
Birth or residence in high-incidence country/region; more than 5 years in U.S.	Treat	If no risk for progression, don't treat
Occupational risk (e.g., employees and volunteers in health care facility, correctional facility, nursing home, mycobacteriology laboratory)	Treat	If no risk for progression, don't treat
Treat if TST reaction is 15 mm or greater	Age < 35 years	Age 35> years
None of the risk factors listed above	Treat	If no risk for progression, don't treat

Adapted from Moffitt MP, Wisinger DB. Tuberculosis: recommendations for screening, prevention, and treatment. Postgraduate Medicine 1996; 100:209.

For more information, please call the Boulder County Public Health (BCPH) TB Control Program at 303-413-7516 or review recommendations for treatment of LTBI by the Centers for Disease Control and Prevention (CDC) at <http://www.cdc.gov/mmwr/PDF/rr/rr4906.pdf>. *Contributed by Carolyn Bargman*

- Persons who are candidates for chemoprophylaxis (e.g., residents in an assisted living facility during an influenza outbreak, or persons who are at higher risk for influenza-related complications and have had recent household or other close contact with a person with laboratory confirmed influenza) should be provided with medications most likely to be effective against the influenza virus they have been/may be exposed to, if known.
- For additional information about dosing, see Table 7, MMWR, July 29, 2005 (No. RR-8) at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5408a1.htm>
- No published data are available concerning the safety or efficacy of using combinations of any of these influenza antiviral drugs.
- Clinicians should remain alert for additional changes in recommendations that might occur as the 2008-09 influenza season progresses.

For more information on who should receive antiviral treatment, see: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5707a1.htm>

Contributed by Nisha Alden

Save the Date:
Big Shot Seminar Series
 for immunization providers

Third Tuesday every month
 February - June 2009
 12 noon - 2 p.m.

For more information, visit
www.BoulderCountyShots.org

Hepatitis and E.coli Cases High, Pertussis Extremely Low

Hepatitis cases continue to represent one of the highest rates of communicable disease in Boulder County. Because of the chronic nature of hepatitis C, treatment of this disease in individuals is ongoing, and therefore represents a large portion of communicable disease prevalence.

Shiga toxin-producing E. coli cases were high in 2008 compared to the previous 5 years. This is the result of an outbreak of E. coli that occurred late in the season in addition to an overall statewide increase of E. coli in 2008.

Fortunately, pertussis cases in 2008 were extremely low compared to the 5-year median. As of December 2008, there were only 5 cases of pertussis in Boulder County, compared to the 5-year median of 76 cases.

Contributed by Jen Chase

