A Story of Tuberculosis in Contra Costa County

Mario was 18 years old in 1938 when he was diagnosed with tuberculosis (TB). His illness was discovered during a school health screening at his high school in Martinez. At that time, one in nine adults died of TB and there were no medications to treat it. Mario was sent to Alum Rock sanatorium in San Jose. He was put on bed rest (he was only allowed to get up to go to the bathroom), required to eat a large amount of healthy food daily, and had air pumped into his chest cavity to collapse the part of his lung that was most affected by the TB infection. When he was sent home two months later, he continued on a strict regimen of diet and rest. He went to his doctor regularly to make sure his lung remained collapsed for the next 4 years, though he was able to return to school in the fall of 1939. Mario continued to report to the Contra Costa County Health Department for yearly chest x-rays until 1977 when he was 57 years old. If Mario contracted TB today, he would be one of only 40 cases in the county. The rate of people who get TB in California has decreased 24 fold since 1938. Mario would take 6-9 months of medications for his TB in his community instead of having to leave his family and suffer a painful procedure far from home. He would have to stay home from school for 2-3 weeks instead of 1.5 years. Due to the hard work of scientists, healthcare professionals, and the public health workforce, in the past 100 years, TB has gone from a terrifying disease that was the number one cause of death and disability in the US, to an illness that is treatable and curable. We are lucky here in Contra Costa County to have access to the benefits of TB care and prevention that are still not available in many parts of the world today.

Public Health Department Role in Managing Tuberculosis

The Contra Costa Public Health Department TB Control Program is responsible for protecting the health of both individuals and our community. We are charged with investigating persons with known or suspected TB disease as well as persons exposed to TB to ensure successful TB treatment and to prevent the spread of TB in our community. The team of Public Health Nurses (PHN) and Disease Intervention Technicians monitor each person closely to ensure those with TB disease receive effective treatment, and those exposed to TB disease or are new Americans from TB-endemic countries (B-Immigrants) are located and receive prompt evaluation and treatment services. This is accomplished by intensive case management, thorough contact investigations and daily home visits to provide Directly Observed Therapy (DOT).

Age Distribution of People with TB Disease, 2017

80% of TB disease in California is reactivated infection in adults. Older adults with chronic diseases are more likely to have weakened immune systems which increase their risk. Remember to screen older adults. They get TB too.

Origin of People with TB Disease, 2017

Most people diagnosed in the US with TB disease are born outside the United States. It is important to consider this when screening patients for TB risk.

Risk Factors for People with TB Disease 2017

2.4 million Californians live with TB infection (LTBI). They have a 5-10% lifetime risk of progression to TB disease. Risk factors for TB include recent contact with a person who has active TB, homelessness, dialysis, illicit drug use, diabetes, HIV and incarceration.

Prepared by Contra Costa Health Services, Public Health Communicable Disease Programs. Data obtained from the Contra Costa Public Health Tuberculosis Program and the California Department of Public Health Tuberculosis Control Branch. For more information, call the Contra Costa Public Health Tuberculosis Program at 925-313-6740 or visit cchealth.org

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INH+Rifapentine

- 12 weekly doses of isoniazid (INH) and rifapentine
- A preferred regimen as patients are more likely to complete short course regimens
- Recommended for all patients \( \geq 2 \) years old except:
  - People taking medications with significant drug-drug interactions with rifapentine (e.g. some diabetes, cardiac and seizure medications; see package insert for details)
  - HIV infected people taking antiretrovirals (due to potential drug-drug interactions with rifapentine)
  - Contacts to persons with INH or rifampin resistant TB
  - Pregnant women or women planning to become pregnant during treatment
  - Persons who have had prior adverse events or hypersensitivity to INH or rifampin.

Possible Side Effects
- Hypersensitivity reaction
- Rash
- Hepatotoxicity (rare)
- Thrombocytopenia (rare)

Rifapentine

- Rifapentine daily for 4 months
- A preferred regimen as patients are more likely to complete short course regimens
- Recommended for persons of any age with LTBI except:
  - People taking medications with significant drug-drug interactions with rifapentine (e.g. some anti-retrovirals, and some diabetes, cardiac and seizure medications; see package insert for details)
  - People presumed infected with M. tuberculosis resistant to rifapentine
  - People who have had prior adverse events or hypersensitivity to rifamycins

Possible Side Effects
- Rash and pruritis
- GI upset
- Hepatotoxicity
- Hematologic abnormalities including thrombocytopenia
- Orange staining of body fluids

Isoniazid (INH)

- 6 or 9 months of daily INH (9 months of treatment is more effective)
- No longer a preferred regimen as patients are less likely to complete a long course of therapy
- Not recommended for:
  - Patients with known allergies to INH
  - Contacts to persons with INH-resistant TB
  - Those with decompensated liver disease or who are being administered other hepatotoxic drugs
  - There may be an increased risk of INH induced hepatotoxicity in pregnant and postpartum women.

Possible Side Effects
- Asymptomatic elevation of LFT's
- Hepatotoxicity
- Peripheral neuropathy – Supplement with vitamin B6 (pyridoxine) in patients at risk: those who are pregnant or breast feeding, have HIV, renal failure, alcoholism or underlying peripheral neuropathy
- Neutropenia (very rare)

Rifampin

- Rifampin daily for 4 months
- A preferred regimen as patients are more likely to complete short course regimens
- Recommended for persons of any age with LTBI except:
  - People taking medications with significant drug-drug interactions with rifampin (e.g. some anti-retrovirals, and some diabetes, cardiac and seizure medications; see package insert for details)
  - People presumed infected with M. tuberculosis resistant to rifampin
  - People who have had prior adverse events or hypersensitivity to rifampin

Possible Side Effects
- Rash and pruritis
- GI upset
- Hepatotoxicity
- Hematologic abnormalities including thrombocytopenia
- Orange staining of body fluids