

G⁺ bacilli

MYCOBACTERIUM TUBERCULOSIS

Virulence: waxes and cord factor prevent destruction by lysosomes + macrophages

epidemiology

- ~ 1/3 of world population carry tubercle bacilli
- resistant
- transmission: airborne respiratory droplets

infection + disease

- 5-10% of infected ppl develop clinical disease
- majority of TB contained in lungs

primary TB

- infectious dose: 10 cells
- multiply w/in alveolar macrophages
- form tubercles after 3-4 weeks of initial immune attack response
- center of tubercle can break down into necrotic caseous lesions; gradually heal

secondary TB

- bacilli reactivate
- tubercles drain into bronchioles + upper respiratory tract
- more severe: violent coughing, greenish or bloody sputum, fever, anorexia, weight loss, fatigue
- untreated 50% mortality

extrapulmonary TB

- bacilli have disseminated to regional lymph nodes, kidneys, long bones, genital tract, brain, + meninges
- grave complications

diagnosis

- fluorescent or tuberculin testing - mantoux test
- x-rays
- direct identification of acid-fast bacilli in specimen
- cultural isolation + biochemical testing

management + prevention

- 6-24 months of at least 2 drugs from list of 11
- Rifater (a pill containing isoniazid, rifampin, pyrazinamide)
- attenuated vaccine

NON-TUBERCULOSIS MYCOBACTERIUM

- M. avium* complex: 3rd most common cause of death in AIDS patients
- M. kansasii* → pulmonary infections in adult white males w/emphysema or bronchitis
- M. marinum* → lesions form after ~~sw~~ scraping swimming pool concrete
- M. scrofulaceum* → infects cervical lymph nodes
- M. paratuberculosis* → raw cow's milk