

Past papers for Mycobacteria Lecture

A homeless, malnourished chronic alcoholic presents with severe headache and dyspnea. Physical examination reveals a disheveled man with poor hygiene. His temperature is 41.0°C (105.8°F), blood pressure is 110/78 mm Hg, and pulse is 96/min and regular. Auscultation of the chest reveals the absence of breath sounds over the left middle lung fields. A chest x-ray confirms left lobar pneumonia. Sputum stain reveals partially acid-fast bacilli with branching rods. Which of the following agents is the most likely cause?

- A) *Mycobacterium avium-intracellulare*
- B) *Mycobacterium kansasii*
- C) *Mycobacterium leprae*
- D) *Mycobacterium tuberculosis*
- E) *Nocardia asteroides*

Answer: E

What is the role of the trehalose dimycolate (cord factor) in the mycobacterial cell wall?

- A) Responsible for inhibiting phagolysosome formation
- B) Serpentine growth
- C) Responsible for mycolic acid synthesis
- D) Acts as an immune modulator
- E) Facilitates iron acquisition

Answer: B

Which of the following statements regarding interferon-gamma release assays (IGRAs) is correct?

- A) They are useful for evaluating immunocompromised patients for active tuberculosis.
- B) They detect antigens present in all *Mycobacterium* species.
- C) They are not yet available for testing in hospitals.
- D) They are performed using molecular probes that detect organism DNA.
- E) They are used as alternatives to the tuberculin skin test to evaluate for latent tuberculosis.

Answer: E

The definition of extensively drug-resistant (XDR) tuberculosis includes?

- A) Resistance to isoniazid
- B) Resistance to a fluoroquinolone
- C) Resistance to capreomycin, amikacin, or kanamycin
- D) Resistance to rifampin
- E) All of the above

Answer: E

Everyone exposed to *Mycobacterium tuberculosis* develops pulmonary tuberculosis.

- A) True B) False

Answer: B

Mycobacterium tuberculosis is a gram-negative bacillus.

- A) True B) False

Answer: B

What is the role of trehalose dimycolate (cord factor) in the mycobacterial cell wall?

- A) Responsible for inhibiting phagolysosome formation
- B) Serpentine growth in vitro
- C) It's found in the inner layer
- D) Secretion of IL-1 and TNF

Answer: B

All of the following statements are true except:

- A) Latent infection in TB is contagious.
- B) Latent TB infection isn't a risk factor for developing the disease.
- C) Latent TB infection causes symptoms or disease.
- D) People who have latent TB infection do not feel sick.

Answer: A

Which of the following can be used to culture *Mycobacterium* species?

- **Answer:** Middlebrook agar

Which of the following is a rapidly growing mycobacterium?

- **Answer:** *Mycobacterium abscessus*

Which of the following is correct regarding latent TB?

- A) Not infectious to others
- B) Always asymptomatic
- C) Decreases the risk of developing active TB

Answer: A

Bacillus Calmette-Guérin vaccine is formed from:

- A) Human TB
- B) Avian TB
- C) Bovine TB

Answer: C