

Quiz Gram Negative Bacteria

1. A 3-year-old boy had complaint of headache with a two days history of fever of 39.7° C and extremely lethargic. A lumbar puncture revealed 2000 neutrophils/mm³ and CSF glucose level of 9 mg/dL (normal 15 to 45 mg/dL). The Gram stain showed gram-negative coccobacilli. The most probable infecting organism is?
 - a. Streptococci Gp B
 - b. Neisseria meningitidis
 - c. S pneumonia
 - d. Escherichia coli
 - e. Haemophilus influenzae
2. A patient was received in emergency department with complaints of low grade fever, chronic cough, night sweats and body aches. Mycobacterium tuberculosis was among the top differentials. Which media is used to culture this pathogen?
 - a. Lofflers medium
 - b. Lowenstein- Jensen media
 - c. Tellurite medium
 - d. Chocolate agar
 - e. Blood agar
3. A patient with leonine (lion-like) facies and hypo-pigmented macular skin lesions came to the medical outpatient department. He was suspected to have leprosy. Mycobacterium leprae is stained by which of the following technique in a basic health unit laboratory?
 - a. Modified ZN staining with weak acid
 - b. PAS staining
 - c. Albert staining
 - d. Rhodamine-auramine staining technique
 - e. Gram staining technique
4. A 27 year old female admitted to the Hospital because of fever with increasing anorexia, headache, abdominal pain, weakness and altered mental state of 2days duration. Ten days prior to admission she had diarrhea that lasted for 36hours. Her temperature is 39° C, heart rate is 68/min, and blood pressure is 120/80. Rose spots seen on her trunk. Blood culture done and IV line placed .The most likely cause of her illness is:
 - a. Enterotoxigenic Escherichia coli
 - b. Shigella sonnei
 - c. Salmonella typhimurium
 - d. Salmonella typhi
 - e. Enteroinvasive Escherichia coli
5. In a community an epidemic of diarrhea occurred. Every patient complained of passing watery stool without fever or abdominal pain. They have remarkable dehydration. On Hospital admission a normal saline drip helps a lot. The most likely etiological organism for this epidemic is;
 - a. Vibrio cholerae
 - b. Pseudomonas spp.

- c. *E. coli*
 - d. *Proteus*
 - e. *Klebsiella* spp
6. A burnt patient developed a wound infection, and a bacteriological culture of the swab from the site reveals non lactose fermenting colonies with bluish green pigment on MacConkey's medium. Gram staining showed gram-negative rods. Oxidase test was positive. The organism was relatively resistant to antibiotics but susceptible to Carbapenems (Meropenem), Gentamicin, and Tobramycin. The organism is likely identified as
- a. *Escherichia coli*
 - b. *Klebsiella pneumoniae*
 - c. *Proteus mirabilis*
 - d. *Serratia marcescens*
 - e. *Pseudomonas aeruginosa*
7. For treatment of cholera, the drug used to inhibit adenyl-cyclase would be expected to:
- a. Paralyse the intestine
 - b. Eradicate the organism
 - c. Increase the fluid secretion
 - d. Block the action of cholera toxin
 - e. Increase the intestinal motility
8. A 45 year old patient, who is a quadriplegic with an indwelling urinary tract catheter, was admitted in Male Medical Ward. He is diabetic and hypertensive. During his stay in hospital he develops bed sores on his both heels. A swab was sent to the lab for culture /sensitivity. A growth of non lactose fermenters obtained with swarming. Oxidase test was negative, staining revealed Gram negative bacilli. The most likely organism is:
- a. *Citrobacter freundii*
 - b. *Enterobacter aerogenes*
 - c. *Proteus mirabilis*
 - d. *Pseudomonas aeruginosa*
 - e. *Klebsiella pneumoniae*
9. From the bloody stool specimens of 5 children under 5 years of age, who were attending a daycare centre? A well established Hospital lab reported the *E coli* O157:H7 strains in culture growth. These children were at an increased risk of developing which of the following?
- a. Renal stones
 - b. Acute dehydration
 - c. Pseudo membranous colitis
 - d. Hemolytic uremic syndrome
 - e. Ulcer in colon

10. A 65-year-old healthy retired female travelled to Karachi on a vacation. Unlike her previous trips, she decides to use local tap water for drinking. She took a cheese burger for lunch and used cold tap water to drink. Thirty-six hours later she develops profuse watery diarrhea, severe cramping and abdominal pain. She was diagnosed with E. coli-related diarrhea. Which of the following E. coli types is the causative agent of this diarrhea?
- Enteroinvasive (EIEC)
 - Enterotoxigenic (ETEC)
 - Enterohemorrhagic (EHEC)
 - Enteropathogenic (EPEC)
 - Enteroadhesive (EAEC)
11. A 7-year-old child developed high-grade fever, severe headache and vomiting. He was taken to emergency, on examination he was noted to have neck stiffness suggesting meningeal irritation. CSF culture showed mixed growth. On Gram staining Gram-negative diplococci and Gram-positive cocci were seen in smear from culture growth. Which of the following enzymatic activity will help to identify meningococci in mixed growth?
- Oxidase
 - DNase
 - Catalase
 - Coagulase
 - Toxin detection
12. Which of the following structures is responsible for adherence of microorganisms to the urethral mucosa?
- Capsule
 - Flagella
 - Pili
 - Peptidoglycan
 - Curli
13. Which of the following bacterial agents has the lowest infective dose for producing gastrointestinal disease in the human host?
- Enteropathogenic Escherichia coli
 - Enterotoxigenic Escherichia coli
 - Salmonella (nontyphoid serotypes)
 - Shigella dysenteriae
 - Vibrio cholerae
14. Medical outreach physicians, working in a refugee camp in southern Punjab, are concerned with the number of young children presenting with high fever, bloody diarrhea, and dehydration. The crowded living conditions of the camp suggest person-to-person contact, but because of the remoteness of the site only limited laboratory studies are available. The suspected organism is described as a non-motile, Gram-negative bacillus that produces non-lactose fermenting colonies on selective media. Based on these findings, which disease is more likely?
- Bacillary dysentery
 - Infection due to Campylobacter jejuni
 - Cholera (O:1 classic biotype)

- d. Non-typhoidal salmonellosis
 - e. Staphylococcal food poisoning
15. A critically ill patient, who has a Foley's catheter, develops a serious UTI. The organism is identified as a motile, non-urease-producing, oxidase negative, Gram-negative bacillus with a high degree of antibiotic resistance that rarely causes disease in immune competent people. The organism formed red pigment on nutrient agar cultivated at room temperature. What is the etiology of this patient's UTI?
- a. *Escherichia coli*
 - b. *Klebsiella pneumoniae*
 - c. *Pseudomonas aeruginosa*
 - d. *Proteus mirabilis*
 - e. *Serratia marcescens*
16. A neonate developed meningitis. Gram negative rods were isolated on Gram staining of CSF. Mother had history of prolonged obstructed labor. The most likely causative agent will be:
- a. *Escherichia coli*
 - b. *Neisseria meningitidis*
 - c. *Group A- β hemolytic Streptococci*
 - d. *Listeria monocytogenes*
 - e. *Streptococcus Pyogenes*
17. A young adult developed signs and symptoms of meningitis. Gram negative cocci were isolated on Gram staining of CSF. The most likely causative agent will be:
- a. *Neisseria meningitidis*
 - b. *E.coli*
 - c. *Group A- β hemolytic Streptococci*
 - d. *Listeria monocytogenes*
 - e. *Streptococcus Pyogenes*
18. An outbreak occurs in community due to contaminated water supply. Patients came with nausea and vomiting as well as profuse diarrhea with abdominal cramps. Stools had rice water appearance. Curved comma shaped Gram negative rods were isolated .What is the mechanism of the action of these pathogens:
- a. Inhibition of protein synthesis
 - b. Endotoxins in the Gram negative cell wall
 - c. Lipopolysaccharide
 - d. Exotoxin-mediated increase in cAMP
 - e. Inhibition of DNA gyrase
19. A 40 year old catheterized women developed fever, not responding to antibiotics. Catheter tip culture revealed Gram negative non-lactose fermenting rods, showing swarming motility on blood agar plate. The most likely pathogen is:
- a. *Proteus vulgaris*
 - b. *Escherichia coli*
 - c. *Salmonella typhi*
 - d. *Pseudomonas*

- e. *Vibrio cholera*
20. A neonate after 24 hours of delivery presented in emergency department with high grade fever and poor feeding. On examination he was semi conscious with neck stiffness. Lumbar puncture was done and microscopy of the CSF showed gram negative rods. What is your diagnosis?
- Group B Streptococci
 - E.coli
 - Klebsiella
 - Pseudomonas
 - Proteus
21. A patient was admitted in hospital with symptoms of meningitis. He was given treatment. But during his stay in hospital, he suffered from a urinary tract infection. Which is the most likely cause of his UTI?
- E.coli
 - Staphylococcus saprophyticus
 - Proteus
 - Klebsiella
 - Bacterioides
22. A patient presented in emergency with third degree burns. Treatment was started. After 6 days there was green colored pus which was seen in his wound dressing. Name the organism causing this infection:
- Staphylococcus
 - Enterobacter
 - Pseudomonas
 - Klebsiella
 - Enterobacter
23. Which of the following organisms can contaminate respiratory equipments?
- E.coli
 - Proteus
 - Pseudomonas
 - Bacterioides
 - Enterobacter
24. Which of the following is the reaction of proteus on TSI?
- alkaline slant/ acid butt/ Gas(-)/ H₂S (-)
 - alkaline slant/ negative butt/ GAS (+)/ H₂S (-)
 - acid slant/ alkaline butt/ GAS(+)/ H₂S(-)
 - acid slant/ alkaline butt/ GAS(-)/ H₂S (-)
 - Alkaline slant/ alkaline butt/ GAS(-)/ H₂S(+)
25. Organisms producing swarming motility on blood agar is:
- Klebsiella
 - Proteus
 - E.coli
 - Pseudomonas
 - Bacterioides
26. Repeated infections with H.Pylori can lead to:
- Gastric adenoma
 - gastric carcinoma
 - duodenal carcinoma
 - Gastric sarcoma
 - Gastric and duodenal carcinoma

27. A 20-year-old male is brought to the emergency department with a 1-day history of delirium. He had a sustained fever of up to 102°F and a history of progressive headache, myalgia, and constipation which began 10 days previously. Physical examination revealed hepatosplenomegaly, diffuse abdominal tenderness, and red spots on the chest and neck. Colonies of a Gram-negative bacillus that produced a characteristic “fish-eye” growth. What is the most likely diagnosis?
- Cholera
 - Hemolytic uremic syndrome
 - Shigellosis
 - Tularemia
 - Typhoid fever
28. A patient presented in emergency department with watery diarrhea. Gram stained slide of stool showed gram negative curved rods.name the organism.
- E.coli
 - Shigella
 - Vibrio
 - Campylobacter
29. The clinical laboratory reports the presence of O157:H7 strains of E Coli in the bloody stools of 6 children ages 3-5 who attended a local petting zoo. These young children would be at increased risk of developing
- Buboes
 - Hemolytic uremic syndrome
 - Infant botulism
 - Renal stones
 - Rice water stools
30. A 38 year old man who recently visited a rural area on business present to the emergency department with voluminous rice water diarrhea and severe dehydration. Which of the following correctly describes the causative agent?
- Gram negative curved rod; toxin that increases cAMP
 - Gram negative curved rod; toxin that inhibits protein synthesis
 - Gram negative rod; toxin that decreasecAMP
 - Intoxication with a heat labile toxin that blocks the release of acetylcholine
 - Toxin which inhibits the protein synthesis by ADP ribosylation
31. A person ate ham burger at dinner. Next day he had bloody diarrhea along with anuria and bleeding from gums. Gram stain of the stool showed gram negative rods. What are TSI findings?
- Acid slant,acid butt GAS(+)H2S(-)
 - Alkaline slant acid butt GAS(-) H2S(-)
 - Alkaline slant alkaline butt GAS(-) H2S (-)
 - Alkaline slant acid butt GAS(+) H2S(+)
 - Acidic slant alkaline butt GAS(+) H2S(+)
32. Name the non-invasive test for the diagnosis of Helicobacter pylori
- ELISA
 - ammonia breath test
 - Oxidase test
 - Urease breath test
 - urease test

