Past papers

بسم الله الرحمن الرحيم

DOPAMINE
SCIENTIFIC TEAM

بحران

Final – Lectures 1 to 8

Bacteriology

﴿ وَإِن تَتَوَلَّوْا يَسْتَبْدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوا أَمْثَالَكُم ﴾

اللهم استعملنا ولا تستبدلنا

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بداية نتمنى التوفيق للجميع ونرجو انو ما
حدا فيكم ييصم أسئلة الباست فقط ويروح
عالامتحان تذكرو انو احنا بندرس للعلم
قبل العلامة مش حلوة بحقك كدكتور
مستقبلي =(

أرجو أنكم تدعو لكل حدا ساهم في عمل
الملف وشكرا توكلوا على الله وابدوا

Q1- Which of the following food items is most frequently associated with infant botulism?

A-Corn syrup
B-Canned infant formula
C-Liquid multivitamins
D-Honey

Ans:d

Q2- Tetanus toxin (tetanospasmin) diffuses to terminals of inhibitory cells in the spinal cord and brainstem and blocks which of the following?

A-Release of acetylcholine

b-Cleavage of SNARE proteins

C-Release of inhibitory glycine and γ-aminobutyric acid

d-Activation of acetylcholine esterase

Ans:c

Q3-Which of the following is false regarding Listeria monocytogenes?

aerobic, non-spore forming G+ rod

A-It is a gram-negative rod

B-It is a weak β-hemolytic → septecemia & menengitis

C-It is motile

d-None of the above is false

Ans:a

Q4-A patient who has not maintained good dentition presents within duration and swelling of the mandibular area. On examination, you note purulent material draining from a small opening. The material appears yellowish, and there are some visible granules as if it was a fungal infection. You perform a Gram stain, and pleomorphic gram-positive rods with short branches are noted along with cells suggestive of acute and chronic inflammation. You suspect which of the following organisms?

a-Bacteroides fragilis
b-Lactobacillus
C-Clostridium perfringens
d-Actinomyces

Ans:d

Q5-Which of the following does not have an Enterobacteriaceae antigen?

A- lactobacilli → it's not an enterobacteriaceae
B- E.coli
C- Salmonella typhi
D- Klebsiella pneumonia

Ans:a

Q6-Gram-positive bacteria that appear as hyphae under the microscope:

A- Actinomyces
B- Clostridium botulinum
C-Lactobacillus

Ans:a

Q7- Which of the following species can cause flaccid paralysis?

weakness → think about botox

A- Clostridium botulinum

B- Clostridium difficle

C-Lactobacillus

Ans:a

Q8-The predominant bacterial genus in the vagina is:

a- Enterococcus

b- Escherichia → cultro

c- Lactobacillus ✓

d- Mycobacterium

Ans:c

Q9- A friend called suffering from abdominal pain and vomiting one hour after having lunch, which of the following is false regarding this case? => conclusion: 1. clostridium perfringes 2. Bacillus cereus => release toxin — abdominal pain, X antibiotic, self limiting.

a- There is no need for antibiotic therapy. ✓

b-Symptoms caused by the toxin usually last for a week.

C- This can be due to Ingestion of preformed bacterial enterotoxin by Clostridium perfringens. ✓

d- Hydration and pain management can be recommended. ✓

e-This can be due to ingestion of preformed bacterial enterotoxin by Bacillus cereus ✓

Ans:b

Q10-Which of the following toxins, mode of action combination is incorrect?

a-Bordetella pertussis --> stimulate adenylate cyclase by ADP ribosylation ✓ ↑cAMP, ↑RST secretions

b- tetani --> blocks release of glycine neurotransmitterc. ✓

C- difficile pseudomembranous colitis --> protease that cleaves desmosomes ↳ we didn't mention anything like this => X

d- S. aureus food poisoning --> superantigene.

E- coli shiga like toxin --> inhibit protein synthesis in enterocytes ✓

cleaves the Ribosomal subunits ⇝ X protein synthesis

Ans:c

Q11-A farmer was working on his farm, he presented with black crusty ulcers on his forearms which of the following is FALSE regarding the pathogenesis of-this organism?

soil/animals

might be Bacillus anthraxus or nocardia

it's more likely to be B. anthraxis

nocardia ⇒ drainage ; ulcer in this case is crusty

a- Antibodies against the B subunit of the virulence factor do not provide protection ✗ باستعاد أو صاحبها

b- Spores are not retrieved from the site of infection ✓ spores germinate at the site of entry

c- The ulcer is painless and edematous ✓

d- This disease is transmitted by spores in the soil that germinated trauma on the patients forearm ✓

e- The cutaneous sign seen is due to exotoxins that cause swelling and inhibition of cell growth necrotic eschar ✓

Ans:a

Q12-Is a common cause of food poisoning?

A-Bacillus cereus → spoiled rice
B-E.coli
C- Clostridium perfringens
D- Salmonella

Ans:a

Q13-Which of the following causes disease by inoculation or inhalation of the bacterial spores:

A- Bacillus anthracis ✓ ingestion, inhalation; prolonged latent period incubation

B- S.aureus

C- S.epidermidis

D- Enterococcus faecalis

Ans:a

Q14-Lactobacilli are: normal flora in vaginal

A- Part of the vaginal and gut microbiota of humans ✓
B- Spore forming gram positive rods
C- Gram negative cocci
D-Gram positive diplococcic A common cause of skin infection

Ans:a

Q15-Gas in soft tissues, the causative agent is ?

↳ bacterial mechabolites
myositis & myonecrosis → α toxin
tissue; complete/partial hemolysis
↳ blood agar

Answer:produced by actively dividing Gram(+ve) anaerobic bacteria spore forming ⇒ C. perfringens.

C. perfringens

Q16- A patient with deep infection and gas gangrene. Lab tests showed complete hemolysis with gram positive spore-forming rods. The causative pathogen is:

A- Clostridium Perfringens ✓
B- Typhi Salmonella
C- Paratyphi Salmonella
D- Clostridium Difficile

Ans:a

Q17-Cervicofacial chronic granulomatous lesions become suppurative and form abscesses connected by sinus tracts. The lesions are most likely associated with which of the following pathogens?

A- Gram negative cocci.
B- Gram positive diplococci.
C- Non-spore forming positive rods
D- Spore forming positive rods
E- Gram negative rods.

Ans:c

Q18-Gram positive+hyphea +causes draining sinus:

A- Lactobacillus
B- Actinomyces ✓
C- S.aureus

Ans:b

Q19-Which of the following is responsible for food spoilage even in canned foods?

A- Clostridium perfringens
B-Clostridium botulinum
C- Clostridium tetani
D- None of the above

Ans:b

Q20-Spore-forming bacteria are found mainly in :

A-freshwater
B-marine environment
C-soil

Ans:c

Q21- Bacteria that produce toxins that travel along the CNS axons?

A- Clostridium botulinum X; not in the CNS, it acts at the neuromuscular junction
B- Clostridium perferngis
C- Clostridium tetanus ✓ ⟹ motile & unregulated synaptic activity in motor neurons
D- Clostridium difficile

wrong answer

Ans:a

Q23-A 42-year-old woman went camping in the Sierra Nevada Mountains,where she slept for two nights in an abandoned log cabin. After the second night, a tick was found on her shoulder. Six days later, she developed fever to 38°C, which lasted for 4 days. Ten days later, she had another similar episode of fever (relapsing fever). Examination of a blood smear stainedwith a special stain showed what species?

A-Borrelia ✓
B-Treponema pallidum
C-Rickettsia
D-Bartonella

Ans:a

Q24-A female present with urethral infection with discharge.Under the microscope, gram-negative diplococci can be seen.What are these bacteria?

Answer: Neisseria gonorrhoeae

Q25- Which of the following statements is wrong?

Answer: MRSA is responsible for 50% of all community andhospital acquired infections.

Q26-Which of the following infections is zoonotic

Answer: Bartonella → cat scratch disease
↳ B. henselae.

Q27-Microscopic examination of a sample taken from a urethral discharge shows gram-negative diplococci and dead neutrophils, the most likely bacterial species causing the discharge is?

Shows in the specimin
=> it replicates inside of it
-> Niesseria gonorrhea

A- Treponema pallidum
B- Neisseria gonorrhea
C- Escherichia coli
D- Mycoplasma genitalium
E- Chlamydia trachomatis

Ans:b

Q28-An outbreak of a diarrheal disease took place in Amman recently leading to hospitalization of around 800 patients Culturing of stool samples resulted in growth of several bacterial species, growth of one of those species indicates person-person transmission rather than a zoonotic infection, this bacterial speciesis most likely:

A- Lactobacillus sp.

B-Salmonella typhi.

C- Campylobacter jejune

D- Enterococcus faecalis

Ans:b

Q29-Which of the following regarding infective endocarditis is false?

A- Left side of the heart is less affected

B- People with prosthetic valves or with reduced immunity are at risk, healthyindividuals are not

C- Most of the pathogens that cause it are normal flora in the oral cavity

D- Can occur from minor surgeries to the oral cavity

E- Bacteria most commonly implicated are Gram positive cocci.

Ans:b

Q31-Most common UTI infections?

E.coli

Q32-One of the following pathogens is mainly transmitted by ticks:

A- Staphylococcus aureus ✗
B- Bartonella henselae ✓ ⇒ cat scratch disease
C- Bordetella Pertussis coughing ⇒ whooping cough
D- Borrelia Burgdorferi ✓
→ lyme disease ✓
→ relapsing fever (x)

Should be B & d

Ans:d

Q33- Trachoma is caused by ?

Answer : chlamdyia

Q34-Trachoma is the leading infectious cause of blindness worldwide and it is caused by:

A- Rickettsia
B- Chlamydia
C- Legionella
D- Hemophilus
E- Escherichia

Ans:b

Q35-Neisseria Meningitis is most likely to be found in:

Answer: A CSF sample of a patient with severe headache and fever.

Q36-bacteria causes ticks bites:

Ans: obligate intracellular

Q38-The spirochetes include the causative agents for:

A- syphilis
B- Lyme disease
C- both syphilis and Lyme disease.
D- neither syphilis nor Lyme disease.

Ans:c

tick borne disease

Q39-Rickettsia rickettsi is responsible for

A- Q-fever
B- Rocky Mountain spotted fever ✓
D- Lyme disease
C- Typhoid fever

Ans:b

Q40- Gonorrhea is?

A- Air borne disease
B- Water borne disease
C- Sexually transmitted venereal disease
D- Both a and c

Ans:c

Q41-Neisseria gonorrhea causes?

A- Urethritis → purelant discharge + dysuria
B- Conjuctivitis → opthelemia neonatum
C- Arthritis → skin & joint infections
D- All of the above ✓

Ans:d

Q42 –Brightfield microscopy and gram staining are not useful in visualizing of one of the following organisms:

A- Neisseria gonorrhea
B- Treponema palladium ✓ too thin (0.1 Mm).
C- Campylobacter jejune
D- Escherichia coli
E- Vibrio cholera

Ans:b

Q43-Moraxella catarrhalis can be seen under the microscope as gram-negative diplococci. A differential test must be carried out to differentiate between this bacterium and:

A- Streptococcus Pneumoniae G+
B- Vibrio G- / spiral / curved.
C- Neisseria → G-, diplococci ✓
D- E. coli G- / rod.

Ans:c

Q44-Microscopic examination of a sample taken from a urethral discharge shows gram negative diplococci and dead neutrophils, the most likely bacterial species causing the discharge is?

A- Treponema pallidum
B- Neisseria gonorrhea ✓
C- Escherichia coli
D- Mycoplasma genitalium
E- Chlamydia trachomatis

Ans:b

Q45-The presence of axial filaments between the inner and outer membrane is important for the movement of one of the following bacterial species:

A- Treponema pallidum → syphilis · ⟷ spirochetes

B- Escherichia coli

C- Streptococcus pneumonia

D- Bacillus anthracis

E- Rickettsia rickettsia

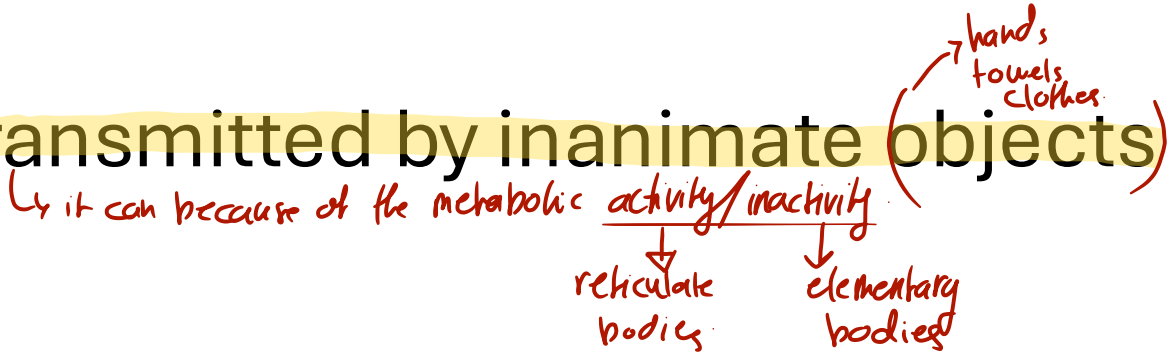
Ans:a

Q46-which of the following is true regarding Lyme disease?

Answer: symptoms are fever and rashes

Q47-which of the following is false regarding Chalmydia trachomatis ?

Answer: it can't be transmitted by inanimate objects



Ans:a

Q50- All of the following is expected to decrease phagocytosis of bacteria except?

A- Biofilm formation.
B- Production of peptidoglycan.
C- Production of complement inhibitors.
D- Production of antibody proteases.
E- Presence of capsule.

Ans:b

Q51-What is affinity maturation?

Mutations in the variable region

Q52-Minimum inhibitory concentration MIC stands for:

A- Minimal amount of an antibiotic required to completely inhibit bacterial growth

B- Minimal amount of an antibiotic required to kill 50% of bacteria

Ans:a

Q53-What is the purpose of Antibiotic Susceptibility test?

Answer: To determine the suitable antibiotic for treating a specific bacterial infection

Q54-Which of the following organisms is NOT mostly implicated in antimicrobial resistance?

A- Enterococcus faecalis
A- Streptococcus pneumoniae
C- Staphylococcus aureus

Ans:b

Now we will move to the questions in dr.Anas slides

Q1-Clostridium difficile is a spore-forming Gram-positive rod primarily associated with which condition?

A- Foodborne botulism → C. botulinum
B- Necrotizing fasciitis → C. perfringenes (Gas gangrene)
C- Antibiotic-associated diarrhea ✓
D- Wound infections → C. perfringes

Ans:c

Q2- Which of the following is the primary reservoir for Clostridium tetani spores?

A- Contaminated food
B- Soil ✓ => ubiquitous
C- Water
D- Animal fece

Ans:b

Q3-Which of the following toxins is produced by Clostridium perfringens and is responsible for gas gangrene?

A- Alpha toxin

B- Botulinum toxin → flaccid paralysis

C- Tetanospasmin → (again) heat labile, plasmid encoded → 1. lock the jaw 2. sardonic smile

D- Enterotoxin → Bacilus cerus, Cl. perfringens

Ans:a

Q4-Which species is associated with food poisoning due to toxin production after improper reheating of rice?

A-Clostridium difficile
B- Clostridium perfringens
C- Bacillus cereus
D- Clostridium botulinum

Ans:c

Q5-Which of the following non-spore-forming Gram-positive rods is-an important cause of neonatal meningitis?

A- Listeria monocytogenes
B- Corynebacterium diphtheriae
C- Lactobacillus acidophilus
D- Propionibacterium acnes

Ans:a

Q6-Which of the following characteristics helps differentiate Actinomyces from Nocardia?

A- Gram-positive staining

B- Presence of branching filaments

C- Acid-fast staining (positive in Nocardia) => this the answer according to the slides

D- Obligate anaerobic growth —> Nocardia is aerobic
Actinomytes is anaerobic

Ans:c

Q7-Which of the following Gram-positive rods is often used in probiotics?

A- Corynebacterium diphtheriae
B- Lactobacillus acidophilus
C- Listeria monocytogenes
D- Cutibacterium acnes

Ans:b

Q8-What is the main mechanism of action of diphtheria toxin?

↳ extra info → diphtrea causes exudative pharangitis
↳ its not common due to immunization.

A- Inhibition of protein synthesis by ADP-ribosylating elongationfactor 2 (EF-2)
B- Damage to cell membranes by pore formation
C- Activation of macrophages to release cytokines
D- Destruction of DNA by nuclease activity

Ans:a

Q9-A 45-year-old male presents with a hard, painless swelling on the lower jaw that has been slowly growing over the past few months. He reports a history of recent dental extractions. Physical examination reveals a draining sinus tract with yellowish granules. What is the most likely causative agent of his condition?

A- Clostridium tetani
B- Listeria monocytogenes
C- Actinomyces israelii
D- Bacillus anthracis

Ans:c

Which of the following doesn't have a cell wall?

a-Ureaplasma • => + mycoplasma

b-Neisseria •

c-Streptococcus •

d-Clostridium •

Ans:a

Which of the following is incorrect about Escherichia? -

a-It is gram-positive G+

b-It has a bacillus shape

c-It can be part of the normal flora

d-Some strains are toxic-

Ans:a

Which of the following is false regarding helicobacter?

a-It is a gram-negative rod ✓

b-It is nonmotile ⇒ motile

c-It is similar to campylobacter in its shape

d-It is associated with gastric cancer & MALT lymphoma < gastric ulcer / duodenum ulcer & chronic gastritis.

Ans:b

Which of the following is false regarding C. Jejuni?

a-It is a microaerophile

b-It has both oxidase and catalase enzyme

c-It is a small gram-negative curved rod

d-It is transmitted by food-handlers ✗ Zoonotic infection

Ans:d

A 28-year-old patient is present with large renal stones and urinary tract infection. After culturing, a gram-negative bacillus was found. This bacterium is most probably a member of the genus:

a-Proteus ✓ → changes urine's pH, struvite & apatite crystals ⇒ Renal failure & kidney stones

b-Yersinia

c-Shigella

d-Enterococcus

Ans:a

Pseudomoas (RST)

A 17-year-old girl with cystic fibrosis has a slight increase in her frequent cough and production of mucoid sputum. A sputum specimen is obtained and plated on routine culture media. The predominant growths are Gram-negative bacilli that form very mucoid colonies after 48 hours of incubation. These bacilli are oxidase positive, grow at 42°C, and have a grapelike odor. These Gram-negative bacilli are which of the following?

a-Klebsiella pneumoniae

b-Pseudomonas aeruginosa ✓

c-Staphylococcus aureus

d-Streptococcus pneumoniae

Ans:b

Yersinia pestis entered North America through San Francisco in the1890s, carried by rats on ships that had sailed from Hong Kong, where aplague epidemic occurred. The current reservoir for Y pestis in the United States is :

a-Urban feral cats

b-Rural wild rodents

c-Domestic cows

d-Coyotes

Ans:b

Humans become infected with Legionella pneumophila by? -

a-Kissing a person who is a legionella carrier -

b-Breathing aerosols from environmental water sources -

c-Receiving a mosquito bite -

d-Consuming undercooked meat -

Ans:b

The Urease breath test is used for the detection of which of the followingorganisms:

a. Helicobacter pylori ✓ → Stomache, to overcome the acidic enviroment urase → NH_3 (alkaline) → allows for attach & toxin release

b. Shigella sonnei

C. Treponema pallidum

d. Campylobacter jejuni

e. Streptococcus pneumonia

pseudomans has phospholipase C ← 1. phospholipase 3. vaculating cytotoxin A 4. cytotoxin associated gene

Ans:a

G+ : cl. perfringens G- : pseudomonas.

An infected burn wound was found to contain gram negative rods in high numbers. When grown in nutrient broth the bacteria formed a greenish dye-and a distinctive sweet odor. The most likely pathogen causing the infection is:

a. Salmonella Typhi

b. Pseudomonas aeruginosa ✓

C. Escherichia coli

d. Streptococcus pyogenes

e. Clostridium botulinum

Ans:b

A stool sample from a patient presenting with bloody diarrhea wasanalyzed. A fastidious curved gram-negative rod which only grew at 6% CO2and 42° C was isolated. This organism is most likely:

a. Salmonella Typhi

b. Helicobacter pylori

c. Shigella sonnei

d. Campylobacter jejuni

e. Escherichia coli

Ans:d

Enterobacteriaceae share one of the following characteristics:

a. All are hospital acquired.

b. All cause infection of the gastrointestinal tract.

C .All are part of the normal gastrointestinal microbiota.

d. All are considered multi drug resistant.

e. All are gram negative rods. ✓

Ans:e

A company reported respiratory infections Of several employees that were never in contact with each other.PC was negative for several respiratory viruses and bacterial culture was only successful on buffered charcoal yeastextract (BYE) agar. Gram staining revealed gram-negative rods. The mostlikely organism causing this outbreak is:

a.Legionella pneumophila ✓

b. Bordetella pertussis

c. Streptococcus pneumonia

d. Helicobacter pylori

e. Hemophilus influenzae

Ans:a

Helicobacter pylori is responsible for:

a.gastroenteritis.

b.Cholera

c.bacterial dysentery.

d. peptic ulcer disease.

↳ develop into gastric & duodenum ulcers

↳ Gastric cancer & MALT

Ans:d

correct about enterobacteraie is:

A.Gram negative cocci

B. Can from spores

c. Fastidious

D. Resistant to antibiotics

Ans:d

. Bacteria that are naturally resistant to antibiotics that target cell wall synthesis and cannot be easily visualized with gram stain are:

a.Mycoplasma ✓ → doesn't have a cell wall to be targeted or stained

B. Escherichia

C. Streptococci

D. Legionella

E. Staphylococci

Ans:a

Which is correct about Enterobacteriaceae family:

A.Some members of this family are part of microbiota while others arepathogenic

B. Non-spore formers gram positive rods

C. Gram negative ~~cocci~~ bacilli

Ans:a

Most common cause of gastric ulcer:

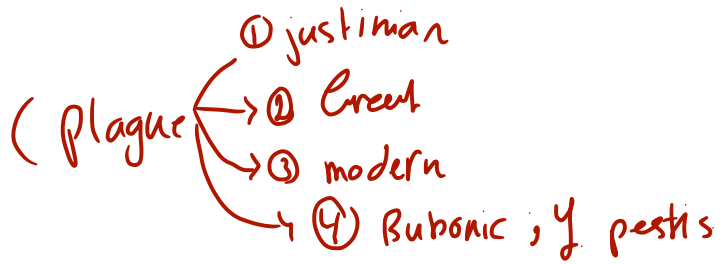
Answer: Helicobacter Pylori

.Most common cause of UTI:

Answer: E.coli

One of these diseases causing pandemic :

Answer: Yersinia



- A patient is present with a watery diarrhea after two hours of eating a meal. Which of the following statements is wrong.?

Answer: Symptoms will last for a week.

Inhibiting synthesis of one of the following can significantly affect bacterial adhesion to epithelial cells?

a. Cytolysins.

b. Fimbria.

c. Flagellum.

d. Capsule.

e. Type 1 secretions system

Ans:b

We cultured the blood of a person with bloody diarrhea, and bacteria grew at 42°C and at 5% oxygen. What are these species?

indicate microaerophilic

Answer: Campylobacter jejuni