

Microbial Diseases Of Urinary Tract

7 Lec.

The functions of U.T. include

A- Eliminating waste products .

B- Regulating the chemical composition and the acid – base balance of the body tissues .

C- Maintaining the water content of the body at the content level .

Anatomy of the U.T :

1- urinary system consists of

Two kidneys , Two ureters ,The urethra ,And

The urinary bladder

2- The basic unit of the kidney is the nephron it is composed of a glomerulus (blood filter) and a long tubule (concentrator and urine collector) .

3- Blood filters through the glomerulus and is concentrated by the tubules , which empty into the ureters .

Diseases of U.T.

1- Common urinary infections are caused by coli forms , intestinal organisms .

2- Predisposing conditions for U.T. infections include :

a- Diabetes mellitus . b- neurologic diseases. c- lesions that interfere with urine flow .

3- Major routes of infection are :

a- blood . b-lymphatic's . c- from the ureter .

4-Diagnostic culturing system are used to :

a- determine the concentrations of bacteria in specimens

b- detect the presence of specific medically important microbes .

c- the presence of more than 100000 bacteria / 1 ml of urine is strongly indicative of infection .

5- Symptoms of U.T. infections such as ;

a- blood in urine . b- accumulation of fluid in tissues . c- pain . d- kidney enlargement

e – blood loss causing anemia .

A- kidney diseases : pyelonephritis (*E. coli* is a major cause) .

B-urinary bladder diseases : cystitis or inflammation of the bladder (caused by *E.coli*, *proteus* , *pseudomonas*. *Trichomonas hominis* .

C-ureter diseases : -

1- Nonspecific urethritis (inflammation of the urethra)caused by various microorganisms such as ; *Neisseria gonorrhoeae*

Hemolytic Streptococci

Hemolytic Staphylococci

Candida albicans (yeast)

Trichomonas hominis (protozoa)

2-Chemicals and the insertion of medical devices such as catheter can also produce urethritis .

D- Urinary Tract Infections(U.T.I.) caused by anaerobes:

Anaerobes belong to genera of ; *Actinomyces* , *Bacteroides* , *Clostridium* , and *Streptococcus* cause infection of kidney .

E- immunologic kidney injury :

1-Immunologic hypersensitivity can cause severe kidney damage (e.g. : Acute glomerulonephritis) .

2-Injury caused either by a- Antibiotics or b- The formation of Ag---Ab complexes .

Diseases Of Reproductive System

1-Anaerobic Streptococci and other bacteria cause infection such as puerperal sepsis (femal) .

2-Neisseria gonorrhoeae ,E.coli ,and Psedomonas aeruginosa are among the causes of prostatic infections (male).

3-Veneral diseases :

Bacterial : chancroid ,gonorrhea ,syphilis .

Viral :Herpes viruses ,Rubella .

Microbial Diseases of Central Nervous System

1-The coordination of body processes is important function of C.N.S.

2-The C.N.S. consists of :

- Brain .

-Spinal cord .

3-Brain and spinal cord are hollow ,contain cerebrospinal fluid ,and are covered by three meninges or membranes .

Diseases of C.N.S.

1-Typical symptoms of C,N.S. infections are ;

-fever

-general weakness.

-headache .

-stiff neck .

2-Major microbial diseases of C. N. S. are ;

-abscesses .

-encephalitis .

-meningitis .

Bacterial Diseases of C. N. S. :

a-brain abscesses . b –meningitis

Viral Infections of C. N. S. :

a-Aseptic (nonbacterial) Meningitis .

b-Encephalitis.

Protozoal INFECTIONS OF C.N.S. :

a-Toxoplasmosis(*Toxoplasma gondii*).b-African sleeping sickness (*Trypanosoma*).

c-Chagas disease (*T. cruzi*).d-Amoebic meningoencephalitis (*Amoeba*).

EYE

Eye consists of eye ball and accessory structures ,including the eye brows ,the eye lids , conjunctiva (inner part of eyelid) ,lacrimal apparatus(which produce tears).

Microbial Diseases Of Eye :

Bacterial include ; Conjunctivitis ,Keratitis ,Trachoma .

Viral include ; Epidemic keratoconjunctivitis (caused by Adenovirus-8).

Herpes corneales (caused by Herpes Simplex virus) .

Microbial Diseases Of Circulatory System

1- The circulatory system , in addition to being susceptible to microbial diseases can serve to spread disease agents and their products to other regions of the body .

2- The circulatory system meets several needs of vertebrates including internal transport of nutrients and hormones ,re-moval of cellular wastes ,regulation of body temperature , and control and elimination of foreign organisms .

3- Blood flows through a closed system that consists of the vessels – arteries , veins , and capillaries –and the heart .

Components of Circulatory System

1- The heart is a highly muscular organ lined with endothelial tissue called **endocardium** .the outside is covered with epithelial tissue called **pericardium** .

2- Internally the heart consists of four chambers , the two upper chambers are called the atria ,the two lower ones ,the ventricles .

3- Arteries ,the vessels with the thickest walls ,conduct blood from the heart to the capillary network ,where the actual exchange between blood and tissue cells occurs .The veins collect blood from the capillaries and return it to the heart for a new cycle.

Diseases of the Heart :

1-Two infections of the heart are rheumatic heart disease and subacute bacterial endocarditis (SBE) .

2-Rheumatic heart disease is a hypersensitivity state that develops in a small percentage of individuals having a history of streptococcal infections .

3- subacute endocarditis result from inflammation of the endocardium by bacteria lodged in irregular or damaged heart valves . SBE may be a complication of any dental procedure that allows bacteria to enter the bloodstream with damaged heart valves .

Other Microbial Diseases of the Circulatory System

Bacterial infections : infections involve this system including plague , relapsing fever , tularemia , and rickettsial diseases such as Rocky Mountain spotted fever ,and typhus fever .

Protozoan infections : examples of diseases involving this system include kala azar (spread by sandflies) and malaria (spread by anophelene mosquitoes) .

Infectious mononucleosis :

I.M. is an acute leukemia like infection caused by the Epstein Barr virus (E.B.V.). EBV involves the lymph nodes and the spleen and attacks B-type lymphocyte .

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