Unit-II

Traditional disease diagnosis methods and tools

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Diagnosis of Infection caused by Streptococcus

- The cause of strep throat is bacteria known as Streptococcus pathogens, also known as group A streptococcus.
- Streptococcal bacteria are highly contagious.
- They can spread through airborne droplets when someone with the infection coughs or sneezes, or through shared food or drinks.

How is Streptococcus Diagnosed?

- Your doctor will examine your throat and check for signs of inflammation.
- They may also check your neck for swollen lymph nodes and ask about other symptoms.
- If your doctor suspects you have strep throat, they may do a rapid strep test in the office.

Diagnosis of Infection caused by Coliforms

- Most urine infections are caused by E. coli bacteria, which belong to a group of bacteria called coli forms.
- If a urinary tract infection is caused by a non-E. coli coli form or any other type of bacteria, there is an increased risk of serious underlying pathology.

Coliform Diagnosis

- To diagnose illness caused by E. coli infection, your doctor will send a sample of your stool to a laboratory to test for the presence of E. coli bacteria.
- The bacteria may be cultured to confirm the diagnosis and identify specific toxins, such as those produced by E. coli O157:H7.

Diagnosis of Infection caused by Bacteria

- Some microorganisms, such as the bacteria that cause syphilis, cannot be cultured. To diagnose such infections, doctors may use a variety of tests called immunologic tests.
- These tests detect one of the following: Antibodies, produced by the person's immune system in response to the microorganism.

Diagnosis of Infection Caused by Viruses

- A viral test is done to find infection-causing viruses. Viruses grow only in living cells. Viruses cause disease by destroying or damaging the cells they infect, damaging the body's immune system, changing the genetic material (DNA) of the cells they infect, or causing inflammation that can damage an organ.
- Viruses cause many types of diseases, such as human immunodeficiency virus (HIV), cold sores, chickenpox, measles, flu (influenza), and some types of cancer.
- Viral tests may be done for viruses such as:
- Herpes simplex
- Chickenpox

Diagnosis of Infection caused by Protozoan

- Microscopy.
- The most unequivocally diagnosis of protozoan infections is by demonstration of the organism in the blood, bone marrow, cerebrospinal fluid, faces or urine.
- The simplest method of microscopic examination is the examination of smears.

Diagnosis of Infection caused by Adenovirus

- Adenovirus infections can be identified using antigen detection, polymerase chain reaction (PCR), virus isolation, and serology.
- Adenovirus typing is usually done by molecular methods.
- Even if a person has adenovirus infection, it does not necessarily mean it is causing the person's particular illness.
- Some people, especially those who have weakened immune systems, can shed the virus for weeks or longer and not have symptoms.

Diagnosis of Infection caused by Rhabdo virus

•Rabies virus causes acute infection of the central nervous system.

•Early diagnosis is difficult.

•Rabies should be suspected in human cases of ... with rabies include poliomyelitis, botulism, and simian herpes type B encephalitis.

Diagnosis of Infection caused by Hepatitis virus

- The humeral immune response plays the pivotal role in the diagnosis of HAV infection and the differentiation of hepatitis A from other types of viral hepatitis.
- There are a number of commercially available assays for the detection of IgM and total anti-HAV (71, 122, 188). IgM, IgA, and IgG anti-HAV are usually present at the onset of symptoms.
- Since hepatitis due to HAV infection is clinically indistinguishable from disease caused by other hepatitis viruses (i.e., HBV, HCV, HDV, and HEV), serologic testing is required to make the diagnosis (230).

Diagnosis of Infection caused by Retrovirus

- Diagnosis for infectious retrovirus can be performed using an S+L- assay and quantization of retrovirus particles by TEM(Transmission electron microscopy).
- Samples can also be tested using PERT(Pancreatic Enzyme Replacement Therapy) or PCR(polymerase chain reaction) methodologies however these assays should be used with caution as these assays may yield low level false positive results.

Diagnosis of Infection caused by Amoebiosis

- A single stool examination has a low sensitivity of detecting the parasite.
- The best diagnostic method is detection of E. histolytic antigen or DNA in stool.
- Clinical diagnosis of amebiasis is difficult because of the nonspecific nature of symptoms.

Diagnosis of Infection caused by Malaria

Malarial parasites can be identified by examining under the microscope a drop of the patient's blood, spread out as a "blood smear" on a microscope slide.

 Prior to examination, the specimen is stained (most often with the Giemsa stain) to give the parasites a distinctive appearance.

This technique remains the gold standard for laboratory confirmation of malaria.

However, it depends on the quality of the reagents, of the microscope, and on the experience of the laboratorian.

Diagnosis of Infection caused by Trypanosomiasis

- Diagnosis of the stage of disease is a necessary step to complete a diagnosis of HAT and is vital for appropriate treatment.
- HAT(Hypoxanthine Aminopterin Thymidine medium) progresses in two stages.
- Diagnosis requires confirming the presence of the parasite in any body fluid, usually in the blood and lymph system.
- Early diagnosis is difficult because of the lack of specific signs or symptoms in the first stage of the disease and also because of the lack of sensitivity of the parasitological methods available.

Thank You...