Lecture 9: Viral Hepatitis Third Year Faculty of Medicine Hashemite University Dr Mohammad Al-Tamimi, MD, PhD



Introduction Infection

- Hepatitis: inflammation of liver; presence of inflammatory cells in organ tissue
- The causes of hepatitis are varied and include viruses, bacteria, and protozoa, as well as drugs and toxins (eg, isoniazid, carbon tetrachloride, and ethanol).
- Acute hepatitis: symptoms last less than 6 months
- Viral Hepatitis: is inflammation of the liver induced by viral infections
- The clinical symptoms and course of acute viral hepatitis can be similar, regardless of etiology, and determination of a specific cause depends on laboratory tests.

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Hepatitis may be caused by at least five different viruses

(A, B, C, D, E) Other viruses, such as Epstein-Barr virus
and cytomegalovirus, can also cause inflammation of the
liver, but hepatitis is not the primary disease caused by
them.

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Hepatitis A

HAV is a picornavirus,. It replicates in the liver, is excreted in bile and is then excreted in the faeces of infected persons for about 2 weeks before the onset of clinical illness and for up to 7 days after.

- Hepatitis A virus is spread by the fecal-oral route, and outbreaks may be associated with contaminated food or water.
- Humans appear to be the major natural hosts of hepatitis A virus.
- The major mode of spread of hepatitis A is fecal-oral. transmission
- HAV particles can be demonstrated in the faeces by electron microscopy. > light microscopy

Epidemiology

Carrier

- Hepatitis A is the most common type of viral hepatitis occurring world-wide, often in epidemics.
- The disease is commonly seen in children and young adults.
- Spread of infection is mainly by the faeco-oral route and arises from the ingestion of contaminated food or water.
- Overcrowding and poor sanitation facilitate spread.

 There is no carrier state.

 - anti bo • More than 90% of the adult population in many developing countries shows evidence of previous hepatitis A infection. Travelers from developed countries who enter endemic areas are particularly susceptible.
 - Patients are most contagious in the 1 to 2 weeks prior to the onset of clinical disease.

@jaundice -> yellow discoloration of the skin + mucaus membrane.

Philirubin / Penzyme

Clinical Manifestations

- Incubation period of 10 to 50 days
- Followed by the onset of fever; anorexia; nausea; pain in the -> yeneral right upper abdominal quadrant;
- → Within several days, jaundice. Dark urine and clay-colored stools may be noticed by the patient 1 to 5 days before the onset of clinical jaundice.

 Physical examination, put your hand

 The liver is enlarged and tender on upper quadrant just 21

 - Recovery occurs in days to weeks. Almost all cases (99%) of hepatitis A are self-limiting. Chronic hepatitis such as that seen with hepatitis B is very rare 1%
 - Many persons who have serologic evidence of acute hepatitis A infection are asymptomatic or only mildly ill, without jaundice.

Jaundice.

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clinical presentator 1 = 16 b UTE was Bilirubin 11 05 b USX Diagnosis (more obvious) Lagron & Carlo Liver biochemistry: A raised serum AST or ALT, which can sometimes be very high, precedes the jaundice. In Mabillus E the icteric stage the serum bilirubin reflects the level Tourndice of jaundice. & WBC • Haematological tests There is leucopenia with a 1108 SL, Pe بلاقعل relative lymphocytosis. Zin Jus BM • The erythrocyte sedimentation rate (ESR) is raised. Inflamatio Viral markers: antibodies to HAV IgG antibodies are علىامسان ال common in the general population over the age of 50 Other cells years, but an anti-HAVIgM means an acute infection. Immune electron microscopic identification of the آ پکون ار virus in fecal specimens and isolation of the virus in positive & PCR cell cultures remain research tools. high alive stoletil costs 210 رع ارعفاج الشطه vilivubin و بعد ما عدر Ig6 Whis immune up 2, in /1 recovery

* Slide 7/ Diagnosis

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Treatment and Prevention

 There is no specific treatment for patients with acute hepatitis A. Supportive measures include adequate nutrition and rest.

• Avoidance of exposure to contaminated food or water are important measures to reduce the risk of hepatitis A infection.

Passive immunization with Immune serum globulin (ISG), is protective if given before or during the incubation period of the disease.

Active immunization with formalin-killed vaccines induce antibody titers similar to those of wild-virus infection and are almost 100% protective.

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Hepatitis B

- The viral genome consists of partially double-stranded DNA with a short, single stranded piece. It comprises 3200 nucleotides, making it the smallest DNA virus known.
- The main components of the virus include the core hepatitis B core antigen (HBcAg) and the pre-corehepatitis B e antigen (HBeAg), and the envelope of the virus contains the hepatitis B surface antigen (HBsAg)
- Hep B is usually an asymptomatic or limited illness with fever and jaundice for days to weeks. It becomes chronic in up to 10% of patients and may lead to cirrhosis or hepatocellular carcinoma.

Epidemiology

The hepatitis B virus is present world-wide with an estimated 300 million carriers. 2 billion people have markers of infection

400 million have chronic infection.

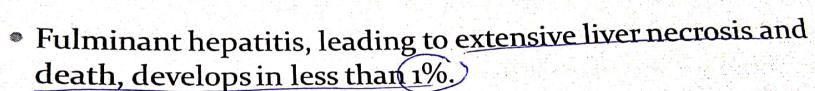
Spread of this virus is either by the intravenous route (e.g. by نازي کان کاند acupuncturists), or by close personal contact, such as during sexual intercourse, particularly in male homosexuals. contaminated needles used by drug addicts, tattooists or transfusion of infected blood or blood products, or by

IIIN JO

Vertical transmission from mother to child during parturition The virus can be found in semen and saliva. > Sexul Fluid or Blood or soon after birth is the usual means of transmission world-

• Needle stick injuries, has resulted in a higher risk of hepatitis

(3) (20-30%) -> hepatitis B (10%) -> chronic hepatitis 1% -> cirrhosis Clinical Manifestations The incubation period may be as brief as 7 days or as long as 160 days (mean, approximately 10 weeks). Acute hepatitis B is usually manifested by the gradual onset of fatigue, loss of appetite, nausea and pain, and fullness in the right upper abdominal quadrant. Early in the course of disease, pain and swelling of the joints and occasional frank arthritis may occur. Some patients develop a rash. With increasing involvement of the liver, there is increasing cholestasis and, hence, clay-colored stools, darkening of the urine, and jaundice. Symptoms may persist for several months before finally resolving. العام الله المعارفة على الما المعارفة على الما المعارفة Carcinoma 11, Circholl II is ofter Complication I Low wind of



Development of chronic hepatitis occurs in approximately 10% of all patients with hepatitis B infection, hepatocellular carcinoma, in up to 25% of patients.