

# **Nobel Prize for Physiology/Medicine 2020**

### Why in News

Americans **Harvey J Alter** and **Charles M Rice**, and British scientist **Michael Houghton** were awarded the **Nobel Prize for Medicine or Physiology**, 2020 for the discovery of the Hepatitis C Virus.

- The Hepatitis C virus was discovered in 1982 by screening millions of DNA samples.
- The Nobel award comes with a gold medal and prize money of 10 million Swedish **kronor** (over USD 1,118,000) and was created by Swedish inventor **Alfred Nobel**.

## **Key Points**

#### Hepatitis:

- Hepatitis refers to an inflammatory condition of the liver.
- It's commonly caused by a viral infection, but there are other possible causes of hepatitis like autoimmune responses, medications, drugs, toxins, and alcohol.
- There are 5 main <u>hepatitis</u> viruses, referred to as types A, B, C, D, and E.
- World Hepatitis Day is observed each year on 28<sup>th</sup> July to enhance awareness of viral hepatitis.

#### Hepatitis C:

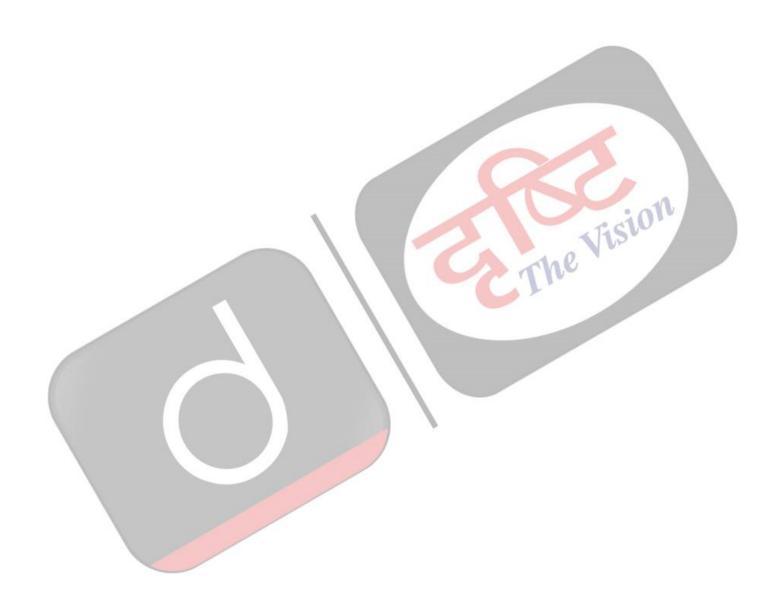
- Hepatitis C is caused by the Hepatitis C Virus (HCV).
- It is transmitted through direct contact with infected body fluids, typically through injection drug use and sexual contact.
- According to the <u>World Health Organization</u>, about 71 million people in the world have chronic infection with the Hepatitis C virus, which is also a major cause of liver cancer.
- A vaccine for the disease has still not been developed but it can be treated with the help of anti-viral drugs.

#### Significance of the Discovery:

- The discovery helped in finding a cure for the disease, and effective anti-viral drugs are now available.
- Tests have also been developed to identify blood containing this virus, so that infected blood is not given to any patient.

#### **Hepatitis in India**

- 40 million people are chronically infected with the Hepatitis B virus and 6 to 12 million with the Hepatitis C virus.
- In 2018 the **National Viral Hepatitis Control Programme** (NVHCP) was launched which has the target to **eliminate Hepatitis C by 2030.** The program is the largest program for Hepatitis B and C diagnosis and treatment in the world.
- Hepatitis B is included under <u>India's Universal Immunization Programme (UIP)</u> which
  provides free of cost vaccination against a total of 12 vaccine-preventable diseases.
- The first recombinant DNA-based vaccine for Hepatitis B infection was made in India by



### Hepatitis C Hepatitis B An estimated 130–150 million individuals are infected globally An estimated 240 million individuals are infected globally Prevalence is highest in sub-Saharan Africa where 5–10% of the adult The most affected regions are Africa, Central and East Asia population are chronically infected Most commonly transmitted by: Most commonly transmitted by: Blood transfusions Unsafe injection practices Contact with blood or other bodily fluids of an infected individual Inadequate sterilization of medical Antivirals can cure approximately 90% of hepatitis C infections, however, access to diagnosis and treatment is low There is no specific treatment for acute hepatitis B. Chronic hepatitis B can be treated but not cured Hepatitis C is responsible for an Hepatitis B is responsible for an estimated 47% of total hepatitis deaths, ~686, 000 per year estimated 48% of total hepatitis deaths, ~700, 000 each year There are approximately 1.4 million deaths each year from acute hepatitis infection Hepatitis E Hepatitis A and complications An estimated 1.4 An estimated 20 million new cases million infections occur worldwide each occur each year year Hepatits A and E combined are responsible for approximately 5% of total hepatitis deaths Prevalence is associated with lack of safe water, Prevalence highest in East and South Asia poor sanitation and hygiene Most commonly transmitted by: Most commonly transmitted by: Ingestion of contaminated Direct contact with an infectious Fecal contamination of drinking water There are no specific treatments for hepatitis A, Usually self-limiting and only requires however, it is rarely fatal symptomatic treatment Hepatitis D Hepatitis D is an RNA virus that requires hepatitis B for replication



This co-infection causes a more severe disease than hepatitis B alone



An estimated 15 million individuals are co-infected with hepatitis D and B

Most commonly transmitted through the blood of bodily fluids of an infected individual



The Vision



There is currently no antiviral treatment for hepatitis D, however it can be prevented by vaccination against hepatits B

# **Source: TH**

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