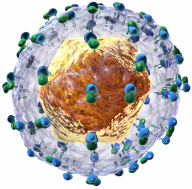


by **Tayo Fasuan**



Few weeks ago, a friend casually told me when we were hanging out that he was diagnosed with hepatitis. When I asked him which one, he looked stunned and blurted out “What do you mean by ‘which one’? Do we have a lot?” His stunned look shocked me, but I kind of expected it. People don’t really know much about different types of hepatitis, and I think in the event of #World\_Hepatitis\_Day that was marked yesterday, it is about time I provide some information about it.

Hepatitis is simply the inflammation of the liver. And by inflammation, we are talking about the ironical, antagonistic activities of one’s immune system against cells of the body that are infected and deemed by the immune system to be carrying pathogens. Inflammation is the commonest form of immunopathology, and in the near future, I will be talking more about it.

So, what can make the body attack its own liver to induce hepatitis? We have two major reasons: alcoholism and viral infections. I will be talking about viral infections in this article, together with their transmission mechanisms and control (treatment and prevention). As obviously explicit, viral hepatitis is hepatitis due to viral infection of the liver, which inevitably leads to the immune system attacking the liver in order to clear the virus(es) out of the liver.

While most people are very familiar with Hepatitis B, and by default think all hepatitis are Hepatitis B, it would surprise many to know that we have five types of viral hepatitis, named after five different viruses that are causing them. By international standard, these viruses are denoted using alphabets: Hepatitis A virus (HAV), Hepatitis B virus (HBV), Hepatitis C virus (HCV), Hepatitis D virus (HDV) and Hepatitis E virus (HEV). The different hepatic diseases caused by these viruses are also denoted by the alphabets of the viruses causing them.

**Hepatitis A:** Hepatitis A is caused by Hepatovirus A, and the infection is very common in regions of the world with an unhygienic living environment and not enough safe water. It is transmitted by faece-contaminated foods, which makes it a food-borne disease. Unhygienic food preparation is usually being fingered as the usual source of transmission, especially if faeces from an infected person have contaminated the food. The symptoms are usually mild, and they include nausea, vomiting, diarrhea, jaundice, fever, and abdominal pain. However, the infection is self-limiting and usually disappears without treatment. Acute liver failure can however occur in older people. The infection can be controlled by washing of hands and sufficiently preparing foods. Vaccine is also available in some countries, especially for children and those vulnerable, and it confers lifelong immunity. Although there is no specific treatment, each symptom can be separately treated to ease the discomforts.

**Hepatitis B:** Hepatitis B is perhaps the most notorious of the viral hepatitis. Caused by Hepatitis B virus (HBV), it is transmitted by infectious fluids from infected people, especially blood. Hence, it is a blood-borne infection. Saliva has not been shown to be included though. Mother to child transmission during childbirth has also been confirmed. The routes of infection have been shown to intravenous drug use (by addicts) and through sex. Although the symptoms associated include vomiting, yellowish skin, tiredness, dark urine and abdominal pain, most infected people usually display no symptoms at all until it gets to a chronic stage where liver cirrhosis and cancer may have eventually developed. This makes the infection one of the most dangerous infections to acquire. Other ways of contracting the infection include nosocomial infection, transfusion of (infected) blood, liver dialysis, living with an infected person and travelling to countries with high infection rates. Prevention includes getting HBV vaccine, which has been shown to highly effective, as well as using condoms during sex. Of course, transfused blood must be properly screened before being used. Treatment for chronic infection involves the use of some very expensive antiviral drugs such as tenofovir. Interferon treatment is also possible. Liver cirrhosis may require liver transplants however.

**Hepatitis C:** This is caused by Hepatitis C virus (HCV), and it is very similar to HBV in terms

of transmission, except through sexual intercourse. It is also a blood-borne infection, and according to the US CDC, it is spread primarily by blood-to-blood contact associated with injection drug use, poorly sterilized medical equipment, needlestick injuries in healthcare, and blood transfusions. In fact, it has been discovered to be more notorious than HBV in blood transfusion after the discovery of the transmission of the virus through blood. It is mandatory now for transfused blood to be screened for HCV before use. Mother-to-child transmission at childbirth is also very common. Unlike HBV, there is no vaccine for HCV yet, and prevention is mainly by screening of transfused blood and education about proper use of injection. Acquiring the infection nosocomially is also being prevented. According to CDC and WHO, chronic infection can be cured with antiviral drugs like sofosbuvir and simeprevir. Some of the drugs are however having severe side-effects. Liver transplant is recommended for cirrhosis, but unfortunately, infection can recur after transplantation.

**Hepatitis D:** Hepatitis D is caused by the hepatitis delta virus (HDV), a virus that can only proliferate and multiply only in the presence of HBV. It has the same route of infection as HBV, and its transmission can only occur as a co-infection with HBV infection, or as a superinfection on HBV infection. Either through co-infection or superinfection, the combination of both hepatitis D and hepatitis B infections is considered the most serious case of all viral hepatitis with the highest case fatality rate. As earlier said, it is very common among injecting drug users, especially those with HBV infection. Vaccine against HBV is very effective in preventing HDV, and a form of interferon therapy is very useful in treating it. As of May 2020, an antiviral drug, Hepcludex, has been approved to treat both HBV and HDV infections.

**Hepatitis E:** Hepatitis E is caused by Hepatitis E virus (HEV), and it shares many similarities with HAV infection in terms of transmission. The infection is self-limiting and resolves without treatment most times. However, it is more severe in pregnant women and people with weak immunity, and with high fatality rates. It has been identified as the cause of fulminant liver failure in pregnant women. It is transmitted faecal-orally, especially through contaminated water supply and undercooked meat. The virus is heavily present in sewages, and heavy rainfall usually leads to contamination of usable water with these sewages. The

virus has also been found to have animal reservoirs, especially pigs and deer. Consuming the undercooked meats of these animals has been identified as a route of infection and transmission. In terms of prevention, personal and environmental hygiene are very effective against HEV transmission. Prevention of contamination of water supplies and proper, sanitary cooking of meats are also very effective. The Food Safety Authority of Ireland recommended that cooking meat, especially pork, at 71 °C (159.8 °F) for five minutes kills the hepatitis E virus. There is no drug recommended for hepatitis E treatment, and the only known vaccine is available in China alone, with WHO recommending nations to individually use the vaccine based on their discretions.

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