

Case study: liver disease and hepatitis b



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Case study – Liver Disease

Introduction

A 60 year old woman with a history of hepatitis B and cirrhosis presents with oedema and constipation. The GP takes the following tests on her and these are the results.

- Albumin 30g/L
- Platelet count $<1 \times 10^{11}$ platelets per litre.(portal hypertension)
- Alpha - fetoprotein 450 ng/mL

Test results

The test results can be used for analysis to clarify what disease the 60 year old woman has, and by linking her symptoms with the test results. Hepatitis B is a virus that affects the liver, chronic hepatitis can develop without proper treatment. Having hepatitis B will eventually cause scarring to the liver which is known as cirrhosis. The 60 year old woman has developed Chronic hepatitis, the hepatitis is ongoing and serious, this will eventually cause the liver tissue to produce scars and stop functioning as it should . A liver biopsy (tissue sample) can be taken to find out how serious the hepatitis is. One of the function of the liver is to produce a protein called albumin, having liver cirrhosis will cause permanent damage to the liver and when this happens the liver will find it had to produce albumin.(Aspinall et al 2011: Pubmed) Albumin is a protein that is made by the liver which measures the exact amount of protein in the clear liquid portion in blood. The test is usually taken place to determine whether a person has a sort of liver or kidney disease which is the main reason why the test was carried out. The normal range in human is between 3.4 – 5.4g/dL. The woman's

albumin level shows that it is below average, low albumin may cause oedema which is a symptom that the woman is experiencing. Cirrhosis results in an increase in fluid retention. Cirrhosis also leads to low levels of albumin and other proteins in the blood which could also be the cause of oedema. (Gupta and Lis, 2010)

Platelet count determines the amount of platelet in the blood, normal adults produce 1×10^{11} platelets every day, portal hypertension is a complication of cirrhosis of the liver. Portal hypertension always takes place in the liver at all times, an increase in the pressure within the portal vein is caused by barrier of the blood flow to through the liver (Kotoh et al 2012). Portal hypertension causes symptoms to patients that are linked to their liver disease which could be hepatitis B, C or cirrhosis, patients that have cirrhosis had a very high chance of developing portal hypertension and it was increase over years. Patients who have portal hypertension usually have low platelet count which is the case of the 60 year old woman whose platelet count is $<10^{11}$ /L which is below average. Thrombocytopenia refers to low blood platelet count. Thrombocytopenia has many causes, including cancer, medications, disease and infections. Thrombocytopenia is a common indicator of cancer, because sometimes the cancer and drugs used to treat the cancer affect platelet production in the bone marrow. (Kotoh et al 2012).

Alpha fetoprotein is a protein that is found in the liver, it is considered a tumour marker for liver cancer, the test may be done to diagnose possible liver diseases. The normal values in males or non-pregnant females is generally less than 40 micrograms/litre. High levels of alpha-fetoprotein indicates that there could be liver cancer which is the key factor which shows <https://assignbuster.com/case-study-liver-disease-and-hepatitis-b/>

that there is something wrong with the liver. If your AFP level is unusually high but you are not pregnant, it may indicate the presence of certain cancers or liver conditions. so a liver transplant could be an option for the woman. In adults, high blood levels can be a sign of certain types of cancer, including liver cancer. (Alejandro et al, 2012)

Symptoms and Diagnosis

Constipation is a liver related issue, in this case It was most likely caused by her progressing tumour formation this may press on her digestive system causing constipation, having cirrhosis may also not allow her to properly digest fatty lipids because her bile might possibly be blocked resulting in constipation. Hypothyroidism can cause constipation. Blood tests to check thyroid hormones / TSH will help in diagnosing hypothyroidism. Oedema is swelling that is caused by fluid trapped in the bodies tissues, oedema can be a sign of lots of things including malnourishment and low albumin level in the blood and the woman's albumin level is below average these are the results of having liver failure and cirrhosis. Having history of cirrhosis is the main reason she has oedema. (Gaw et al 2013)

Because of the woman's age cancer would need to be tested for cancer as old people are much more prone to have cancer. Albumin is produced by the liver meaning that her liver is affected inducting liver cancer. Some patients with chronic liver diseases are more likely to develop thyroiditis, hyperthyroidism or hypothyroidism through autoimmune mechanisms (Huang, Liaw 2008). The woman may have Hepatocellular Carcinoma (HCC) which is most common and popular type of liver cancer. The main risk factors associated with HCC are hepatitis B, C and cirrhosis which the woman

has a history of. HCC develops in patients with chronic liver disease and patients with cirrhosis are more likely to develop HCC and people over the age of 50 are more likely to develop HCC. The most common diseases that affects the liver are cirrhosis and hepatitis (Marshall and Bangert 2008). HCC is a serious disease in which alpha-fetoprotein will be elevated in a person, alpha-fetoprotein is a gene that becomes expressed when lots of damage has occurred to the liver in HCC. The normal range for AFP is 10-20 ng/mL. A level of > 400 ng/mL may be regarded as diagnostic for HCC by some.

Further tests

A test that can be proposed is an ultrasound of the liver, an ultrasound test uses sound waves to create pictures and to see what is going on with organs inside the body. If any tumours are found in the liver then this can be furthered to test for cancer. An MRI scan can be useful for looking at liver cancers, MRI are sometimes good at telling which cancers are a tumour.

Another tests that can be carried out is biopsy which involves actually taking the tumour and inspecting it under the microscope for further analysis which is likely to be more effective and reliable. Alanine aminotransferase(ALT)An alanine aminotransferase (ALT) test measures the amount of this enzyme in the blood. ALT is found mainly in the liver, ALT is measured to see if the liver is damaged or diseased. Low levels of ALT are normally found in the blood. But when the liver is damaged or diseased, it releases ALT into the bloodstream, which makes ALT levels go up. Most increases in ALT levels are caused by liver damage.

Treatment and Prognosis

Some treatment for HCC can include a liver transplant or surgery which can remove small or small-growing tumours. Sorafenib tosylate (Nexavar), which is an oral medication can be taken to block and stops tumour from growing. The prognosis is often poor, because only 10 - 20% of hepatocellular carcinomas can be removed completely using surgery. Radio frequency ablation can be used to kill cancerous cells. If the cancer cannot successfully be removed or killed, the disease is usually deadly within 3 - 6 months. However, this is not always the case as everybody is difference and so on some occasions people will survive much longer than 6 months. (Forner at al 2012: Pubmed)

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