IBANGA EMMANUELLA .M.

PHARMACOLOGY

18/MHS07/022

ASSIGNMENT:

1. Why do we have the portal vein or the liver receiving more blood from the vein than it receives from the artery?

2. Discuss five (5) disease conditions of the liver

ANSWER:

The portal vein or hepatic portal vein (HPV) is a blood vessel that carries blood from the gastrointestinal tract, gallbladder, pancreas and spleen to the liver. This blood contains nutrients and toxins extracted from digested contents. Approximately 75% of total liver blood flow is through the portal vein, with the remainder coming from the hepatic artery proper. The blood leaves the liver to the heart in the hepatic veins.

The portal vein is not a true vein, because it conducts blood to capillary beds in the liver and not directly to the heart. It is a major component of the hepatic portal system, one of only two portal venous systems in the body – with the hypophyseal portal system being the other.

The portal vein is usually formed by the confluence of the superior mesenteric and splenic veins and also receives blood from the inferior mesenteric, left and right gastric veins, and cystic veins.

The portal vein and hepatic arteries form the liver's dual blood supply. Approximately 75% of hepatic blood flow is derived from the portal vein, while the remainder is from the hepatic arteries. [2]

Unlike most veins, the portal vein does not drain into the heart. Rather, it is part of a portal venous system that delivers venous blood into another capillary system, the hepatic sinusoids of the liver. In carrying venous blood from the gastrointestinal tract to the liver, the portal vein accomplishes two tasks: it supplies the liver with metabolic substrates and it ensures that substances ingested are first processed by the liver before reaching the systemic circulation. This accomplishes two things. First, possible toxins that may be ingested can be detoxified by the hepatocytes before they are released into the systemic circulation. Second, the liver is the first organ to absorb nutrients just taken in by the intestines. After draining into the liver sinusoids, blood from the liver is drained by the hepatic vein.

The liver receives a blood supply from two sources. The first is the hepatic artery which delivers oxygenated blood from the general circulation. The second is the hepatic portal vein delivering deoxygenated blood from the small intestine containing nutrients.

The blood flows through the liver tissue to the hepatic cells where many metabolic functions take place. The blood drains out of the liver via the hepatic vein.

The liver tissue is not vascularised with a capillary network as with most other organs, but consists of blood filled sinusoids surrounding the hepatic cells.

Liver conditions

Your liver does a lot of things that keep you healthy. It turns nutrients into chemicals your body needs. It filters out poisons. It helps turn food into energy. So when your liver doesn’t work well, that can affect your whole body.

* Alagille syndrome: is an inherited disorder that closely resembles other forms of liver disease seen in infants and young children. However, a group of unusal features affecting other organs distinguishes Alagille syndrome from the other liver and biliary disease of infants.
* Hemochromatosis makes your body store up too much of the iron from your food. The extra iron builds up in your liver, heart, or other organs. It can lead to life-threatening conditions such as liver diseases, heart disease, or diabetes.
* Hyperoxaluria hits when your urine has too much of a chemical called oxalate. Oxalate is a natural part of your system, and your liver makes a chemical that controls it. If your liver makes too little of that chemical, oxalate builds up. Then it can cause kidney stones and kidney failure. If your kidneys do fail, that can give you oxalosis, where the oxalate collects in other organs and causes more trouble.
* Wilson's disease makes copper build up in your liver and other organs. Its first symptoms usually show up when you’re between the ages of 6 and 35, most often in your teens. It not only affects your liver, but it can cause nerve and psychiatric problems.
* Acute liver failure. This happens when you don’t have a long-term liver disease but your liver quits working within a very short time -- days or weeks. That may happen because of an overdose of acetaminophen, infections, or because of prescriptions drugs.
* Cirrhosis is a buildup of scars in your liver. The more scars replace the healthy parts of your liver, the harder it is for your liver to do its job. Over time, it may not work like it should.