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18/MHS07/034

ANA 202

PHARMACOLOGY

1. This is so because the vein contains oxygen and other nutrients brought to the liver by the intestines for processing.
2. I. 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. These include autoimmune hepatitis and hepatitis that occurs as a secondary result of medications, drugs, toxins, and alcohol. [Autoimmune hepatitis](https://www.healthline.com/health/autoimmune-hepatitis) is a disease that occurs when your body makes antibodies against your liver tissue.

Your [liver](https://www.healthline.com/human-body-maps/liver) is located in the right upper area of your abdomen. It performs many critical functions that affect metabolism throughout your body, including:

* bile production, which is essential to [digestion](https://www.healthline.com/health/digestive-health)
* filtering of toxins from your body
* excretion of bilirubin (a product of broken-down red blood cells), cholesterol, hormones, and drugs
* breakdown of [carbohydrates](https://www.healthline.com/health/food-nutrition/simple-carbohydrates-complex-carbohydrates), fats, and proteins
* activation of enzymes, which are specialized proteins essential to body functions
* storage of glycogen (a form of sugar), minerals, and vitamins (A, D, E, and K)
* synthesis of blood proteins, such as albumin
* synthesis of clotting factors

According to the [Centers for Disease Control and Prevention (CDC)Trusted Source](http://www.cdc.gov/stltpublichealth/didyouknow/topic/hepatitis.html), approximately 4.4 million Americans are currently living with chronic hepatitis B and C. Many more people don’t even know that they have hepatitis.

Treatment options vary depending on which type of hepatitis you have. You can prevent some forms of hepatitis through immunizations and lifestyle precautions.

The 5 types of viral hepatitis

Viral infections of the liver that are classified as hepatitis include hepatitis A, B, C, D, and E. A different virus is responsible for each type of virally transmitted hepatitis.

Hepatitis A is always an acute, short-term disease, while hepatitis B, C, and D are most likely to become ongoing and chronic. Hepatitis E is usually acute but can be particularly dangerous in pregnant women.

Hepatitis A

[Hepatitis A](https://www.healthline.com/health/hepatitis-a) is caused by an infection with the hepatitis A virus (HAV). This type of hepatitis is most commonly transmitted by consuming food or water contaminated by feces from a person infected with hepatitis A.

Hepatitis B

[Hepatitis B](https://www.healthline.com/health/hepatitis-b) is transmitted through contact with infectious body fluids, such as blood, vaginal secretions, or semen, containing the hepatitis B virus (HBV). Injection drug use, having sex with an infected partner, or sharing razors with an infected person increase your risk of getting hepatitis B.

It’s estimated by the [CDCTrusted Source](http://www.cdc.gov/hepatitis/hbv/pdfs/hepbatrisk.pdf) that 1.2 million people in the United States and 350 million people worldwide live with this chronic disease.

Hepatitis C

[Hepatitis C](https://www.healthline.com/health/hepatitis-c) comes from the hepatitis C virus (HCV). Hepatitis C is transmitted through direct contact with infected body fluids, typically through injection drug use and sexual contact. HCV is among the most common bloodborne viral infections in the United States. [Approximately 2.7 to 3.9 million AmericansTrusted Source](http://www.cdc.gov/hepatitis/hcv/cfaq.htm#statistics) are currently living with a chronic form of this infection.

Hepatitis D

Also called delta hepatitis, [hepatitis D](https://www.healthline.com/health/delta-agent-hepatitis-d) is a serious liver disease caused by the hepatitis D virus (HDV). HDV is contracted through direct contact with infected blood. Hepatitis D is a rare form of hepatitis that only occurs in conjunction with hepatitis B infection. The hepatitis D virus can’t multiply without the presence of hepatitis B. It’s very uncommon in the United States.

Hepatitis E

[Hepatitis E](https://www.healthline.com/health/hepatitis-e) is a waterborne disease caused by the hepatitis E virus (HEV). Hepatitis E is mainly found in areas with poor sanitation and typically results from ingesting fecal matter that contaminates the water supply. This disease is uncommon in the United States. However, cases of hepatitis E have been reported in the Middle East, Asia, Central America, and Africa, according to the [CDCTrusted Source](http://www.cdc.gov/hepatitis/HEV/HEVfaq.htm#section1).

II. CIRRHOSIS:

* [Cirrhosis](https://www.medicinenet.com/cirrhosis_symptoms_and_signs/symptoms.htm) is a complication of [liver disease](https://www.medicinenet.com/liver_disease/article.htm) that involves loss of [liver](https://www.medicinenet.com/liver_anatomy_and_function/article.htm)cells and irreversible scarring of the liver.
* [Alcohol](https://www.medicinenet.com/alcohol_metabolism/article.htm) and [viral hepatitis](https://www.medicinenet.com/viral_hepatitis/article.htm) B and C are common causes of cirrhosis, although there are many other causes.
* Cirrhosis can cause [weakness](https://www.medicinenet.com/weakness/symptoms.htm), [loss of appetite](https://www.medicinenet.com/loss_of_appetite/symptoms.htm), [easy bruising](https://www.medicinenet.com/bruises/article.htm), yellowing of the skin ([jaundice](https://www.medicinenet.com/image-collection/jaundice_picture/picture.htm)), [itching](https://www.medicinenet.com/itch/article.htm), and [fatigue](https://www.medicinenet.com/fatigue/article.htm).
* Diagnosis of cirrhosis can be suggested by history, physical examination and blood tests, and can be confirmed by [liver biopsy](https://www.medicinenet.com/liver_biopsy/article.htm).
* Complications of cirrhosis include:
	+ Swelling of the abdomen ([ascites](https://www.medicinenet.com/ascites/article.htm)) and/or in the hip, thigh, leg, ankle, and foot
	+ Spontaneous bacterial [peritonitis](https://www.medicinenet.com/peritonitis/article.htm)
	+ Bleeding from varices
	+ [Hepatic encephalopathy](https://www.medicinenet.com/hepatic_encephalopathy/article.htm)
	+ Hepatorenal syndrome
	+ Hepatopulmonary syndrome
	+ Hypersplenism
	+ [Liver cancer](https://www.medicinenet.com/liver_cancer_hepatocellular_carcinoma/article.htm)
* Treatment of cirrhosis is designed to prevent further damage to the liver, treat complications of cirrhosis, and preventing or detecting liver [cancer](https://www.medicinenet.com/cancer/article.htm)early.

III. LIVER CANCER:

The symptoms of liver cancer do not usually become apparent until the disease reaches an advanced stage.

Liver cancer may cause the following:

* [jaundice](https://www.medicalnewstoday.com/articles/165749.php), where the skin and eyes become yellow
* abdominal pain
* pain close to the right shoulder blade
* unexplained weight loss
* an enlarged liver, spleen, or both
* swelling in the abdomen or fluid buildup
* [fatigue](https://www.medicalnewstoday.com/articles/248002.php)
* nausea
* vomiting
* [back pain](https://www.medicalnewstoday.com/articles/172943.php)
* itching
* [fever](https://www.medicalnewstoday.com/articles/168266.php)
* a full feeling after a small meal

Liver cancer might also cause swollen veins that are visible under the abdominal skin, as well as bruising and bleeding.

It can also lead to high levels of [calcium](https://www.medicalnewstoday.com/articles/248958.php) and [cholesterol](https://www.medicalnewstoday.com/articles/9152.php) and low blood sugar levels.

Stages

To help guide treatment and define the outlook of liver cancer, healthcare professionals divide its progression into four stages:

* Stage 1: The [tumor](https://www.medicalnewstoday.com/articles/249141.php) remains in the liver and has not spread to another organ or location.
* Stage 2: Either there are several small tumors that all remain in the liver or one tumor that has reached a blood vessel.
* Stage 3: There are various large tumors or one tumor that has reached a main, large blood vessel.
* Stage 4: The cancer has metastasized, meaning it has spread to other parts of the body.

Once a doctor has diagnosed and identified the stage of cancer, a person will start to receive treatment.

IV. HEMOCHROMATOSIS:

[Hemochromatosis](https://www.webmd.com/a-to-z-guides/tc/hemochromatosis-topic-overview) is a disorder where too much iron builds up in your body. Sometimes it’s called “iron overload.”

Normally, your [intestines](https://www.webmd.com/digestive-disorders/picture-of-the-intestines) absorb just the right amount of iron from the foods you eat. But in hemochromatosis, your body absorbs too much, and it has no way to get rid of it. So, your body stores the excess iron in your joints and in organs like your [liver](https://www.webmd.com/digestive-disorders/picture-of-the-liver), [heart](https://www.webmd.com/heart/picture-of-the-heart), and [pancreas](https://www.webmd.com/digestive-disorders/picture-of-the-pancreas). This damages them. If it’s not treated, hemochromatosis can make your organs stop working.

There are two types of this condition -- primary and secondary.

Primary hemochromatosis is hereditary, meaning it runs in families. If you get two of the genes that cause it, one from your mother and one from your father, you’ll have a higher risk of getting the disorder.

Secondary hemochromatosis happens because of other conditions you have. These include:

* Certain kinds of [anemia](https://www.webmd.com/a-to-z-guides/understanding-anemia-basics)
* [Liver](https://www.webmd.com/hepatitis/ss/slideshow-surprising-liver-damage) disease
* Getting a lot of [blood](https://www.webmd.com/heart/anatomy-picture-of-blood) transfusions

White people of northern European descent are more likely to get hereditary hemochromatosis. Men are 5 times more likely to get it than women

Symptoms

Up to half of people who have hemochromatosis don’t get any symptoms. In men, symptoms tend to show up between ages 30 and 50. Women often don’t show signs of this condition until they’re over 50 or past [menopause](https://www.webmd.com/menopause/default.htm). That may be because they lose iron when they get their periods and give birth.

Symptoms of hemochromatosis include:

* Pain in your joints, especially your knuckles
* Feeling tired
* Unexplained weight loss
* [Skin](https://www.webmd.com/skin-problems-and-treatments/picture-of-the-skin) that has a bronze or gray color
* Pain in your belly
* Loss of [sex drive](https://www.webmd.com/sex/features/sex-drive-how-do-men-women-compare)
* Loss of body [hair](https://www.webmd.com/skin-problems-and-treatments/picture-of-the-hair)
* [Heart flutter](https://www.webmd.com/heart-disease/atrial-fibrillation/atrial-flutter)
* Foggy memory

Sometimes people don’t get any symptoms of hemochromatosis until other problems arise. These may include:

* [Liver](https://www.webmd.com/hepatitis/rmq-know-your-liver) problems, including [cirrhosis](https://www.webmd.com/digestive-disorders/cirrhosis-liver)(scarring) of the liver
* [Diabetes](https://www.webmd.com/diabetes/default.htm)
* Abnormal heartbeat
* [Arthritis](https://www.webmd.com/arthritis/default.htm)
* [Erectile dysfunction](https://www.webmd.com/erectile-dysfunction/default.htm) (trouble having an erection)

If you take a lot of [vitamin C](https://www.webmd.com/vitamins-supplements/ingredientmono-1001-vitamin%2Bc%2Bascorbic%2Bacid.aspx?activeingredientid=1001&activeingredientname=vitamin+c+(ascorbic+acid)) or eat a lot of foods that contain it, you can make hemochromatosis worse. That’s because vitamin C helps your body absorb iron from food.

V. WILSON DISEASE

Wilson's disease is a rare inherited disorder that causes copper to accumulate in your liver, brain and other vital organs. Most people with Wilson's disease are diagnosed between the ages of 5 and 35, but it can affect younger and older people, as well.

Copper plays a key role in the development of healthy nerves, bones, collagen and the skin pigment melanin. Normally, copper is absorbed from your food, and excess is excreted through a substance produced in your liver (bile).

But in people with Wilson's disease, copper isn't eliminated properly and instead accumulates, possibly to a life-threatening level. When diagnosed early, Wilson's disease is treatable, and many people with the disorder live normal lives.

Symptoms

Wilson's disease is present at birth, but signs and symptoms don't appear until the copper builds up in the brain, liver or other organ. Signs and symptoms vary depending on the parts of your body affected by the disease. They can include:

* + Fatigue, lack of appetite or abdominal pain
	+ A yellowing of the skin and the whites of the eye (jaundice)
	+ Golden-brown eye discoloration (Kayser-Fleischer rings)
	+ Fluid buildup in the legs or abdomen
	+ Problems with speech, swallowing or physical coordination
	+ Uncontrolled movements or muscle stiffness

Wilson's disease is inherited as an autosomal recessive trait, which means that to develop the disease you must inherit one copy of the defective gene from each parent. If you receive only one abnormal gene, you won't become ill yourself, but you're a carrier and can pass the gene to your children.

Risk factors

You can be at increased risk of Wilson's disease if your parents or siblings have the condition. Ask your doctor whether you should undergo genetic testing to find out if you have Wilson's disease. Diagnosing the condition as early as possible dramatically increases the chances of successful treatment.

Complications

Untreated, Wilson's disease can be fatal. Serious complications include:

* + Scarring of the liver (cirrhosis). As liver cells try to make repairs to damage done by excess copper, scar tissue forms in the liver, making it more difficult for the liver to function.
	+ Liver failure. This can occur suddenly (acute liver failure), or it can develop slowly over years. A liver transplant might be a treatment option.
	+ Persistent neurological problems.Tremors, involuntary muscle movements, clumsy gait and speech difficulties usually improve with treatment for Wilson's disease. However, some people have persistent neurological difficulty despite treatment.
	+ Kidney problems. Wilson's disease can damage the kidneys, leading to problems such as kidney stones and an abnormal number of amino acids excreted in the urine.
	+ Psychological problems. These might include personality changes, depression, irritability, bipolar disorder or psychosis.
	+ Blood problems. These might include destruction of red blood cells (hemolysis) leading to anemia and jaundice.