# Hepatoprotective agents

Hepatoprotectants are substances with a (potentially) **regenerative and protective effect** on liver cells. It is one of the often prescribed drugs. They are generally readily available and many are available without a prescription.

## Indication

A general indication for prescription is various liver lesions. The most common are chronic alcoholism, liver inflammation or overdose with hepatotoxic substances. They can also be given to patients with elevated aminotransferase levels for whom the cause of their elevation is unknown.

## Silibinin

It blocks the cell's transport system and reduces the extent of necrosis. It also has a **regenerative effect** and stimulates RNA polymerase. It is contained in the seeds of a plant called **Milk Thistle** and can be purchased freely in the form of loose tea. It is a popular tea in people with liver damage, as it significantly reduces the level of aminotransferases and stabilizes the impaired metabolic function of the hepatocyte. It has been found that more bioavailable injectable forms of silibinin have been able to protect the liver from such highly hepatotoxic substances as phalloidin and amanitin (green toadstool alkaloids). The disadvantage of silibinin is its low bioavailability and therefore it is slightly absorbed from the GIT. Bioavailability can be enhanced (up to 10-fold) by co-administration with phosphatidylcholine. In amatoxin poisoning, 20 mg / kg / day is administered i.v. after 3-5 days.

## Silymarin

It has less hepatoprotective effect than the above-mentioned silibinin. It is also contained in the seeds of Milk Thistle.

## Phosphatidylcholine (lecithin)

It is **the most important phospholipid**, which is derived from phosphatidic acid, to the phosphate group of which choline is attached. It is extremely important for the **formation of a bilayer biological membrane**. The logic of administration is that if we administer a substrate (= phosphatidylcholine) to form a membrane to the damaged liver, it can be incorporated into newly proliferating cells and thus accelerate liver regeneration. Phosphatidylcholine administration is somewhat controversial, as studies have not shown a significant acceleration in liver regeneration. It is therefore possible that this is a mere placebo effect. However, it is still widely used in patients with liver damage. It is freely available in the Czech Republic even without a prescription under the name **ESSENTIALE FORTE**. Usually 1-2 capsules are given 3 times a day.

## N-acetylcysteine

Dominant hepatoprotective or rather antidote in paracetamol overdose. The major metabolite of paracetamol accumulates in liver cells during overdose, depleting the stores of glutathione with which it conjugates. The metabolite in excess then damages the hepatocyte and necrosis and acute liver failure occur. N-acetylcysteine maintains or supplements glutathione in the hepatocyte. It is administered within 8-10 hours after poisoning exclusively intravenously 150 mg / kg, i.v, due to low bioavailability in the GIT and unpleasant taste.

## Ursodeoxycholic acid

It is a secondary bile acid freely present in human bile. It is available in the Czech Republic under the name **Ursosan**. For more information, see ursodeoxycholic acid.

## Metadoxin

A drug that is not registered in the Czech Republic, but is used by some countries in the treatment of acute alcohol intoxication, chronic alcoholism and liver damage. Metadoxin is able to increase acetaldehyde dehydrogenase levels and thus increase urinary alcohol clearance. It also increases glutathione levels, thereby preventing membrane lipoperoxidation. It also reduces fibroproduction in the liver by reducing TNF-α levels and inhibiting It cells. By molecular-biological mechanisms, it **stops the differentiation of preadipocytes into adipocytes** and is thus able to prevent the development of liver steatosis. The usual dose is 300 to 500 mg intravenously 3 times a day for 3 months.