Bitter treats: future therapies for liver choleostasis in children

Bile is a dark, greenish brown fluid produced by the liver cells and stored in the gallbladder. This bitter-tasting fluid is crucial for digestion of fats in the small intestine, acting as a powerful emulsifier, enveloping drops of fat to form bubble-like micelles to facilitate the process of fat digestion.

Choleostasis arises when bile excretion from the liver is blocked. Many different factors can give rise to this syndrome, including genetic factors, infections, and in some newborns, the absence of a bile duct. Cholestasis results in serious problems, including liver failure and poor absorption of fats and fat-soluble vitamins. Because of these symptoms, chronic choleostasis - particularly in children - is one of the most difficult conditions to treat.

But there is hope for the children who suffer from this disorder. In his article entitled “Treatments in chronic choleostasis in children”, Fernando Alvarez reviews the treatments available today. Beginning with an old standby, ursodeoxycholic acid, Alvarez describes how this compound works to improve the secretion of bile acids in the liver. Another drug, rifampicin, also works in a similar manner. But the side effects associated with these drugs has prompted researchers to explore new treatment options.

Alvarez lists a number of promising therapies that are under development, such as the use of ion exchange resins and omega-3 fatty acids. One exciting idea is to re-populate the dysfunctional liver with normal liver cells, a technique called hepatocyte transplantation. Researchers have already seen promising results in animal models, but it will be some time before this method is ready for testing in humans.

The real advance, according to Alvarez, will be the application of individualized therapy to suit the needs of each child. Using smart combinations of drugs, clinicians will be able to minimize disease symptoms and improve the quality of life for their patients. The ultimate hope is that new drugs will significantly postpone or eliminate the need for risky surgeries such as liver transplantation.

References