Bile Acid Diarrhoea

Bile acid diarrhoea is common, especially in people who are thought to have irritable bowel syndrome. Bile acid diarrhoea may be caused by a problem with your bowel. Much more often there is no other medical problem causing the diarrhoea. Bile acid diarrhoea responds very well to treatment with a medicine called a bile acid binder. The outcome is usually very good if there is no other problem with your bowel.

Understanding the gallbladder and bile

Bile is a fluid made in the liver. Bile contains various substances including bile pigments, bile acids, bile salts, cholesterol and lecithin. Bile is passed into tiny tubes called bile ducts. The bile ducts join together (like the branches of a tree) to form the main bile duct. Bile constantly drips down the bile ducts, into the main bile duct and then into the gut.

The gallbladder lies under the liver on the right side of the upper tummy (abdomen). It is like a pouch which comes off the main bile duct and fills with bile. It is a 'reservoir' which stores bile. The gallbladder squeezes (contracts) when we eat. This empties the stored bile back into the main bile duct. The bile passes along the remainder of the bile duct into the duodenum, which is the first part of the small bowel (gut) after the stomach.

The bile then moves with the rest of the bowel contents along the small bowel. The last part of the small bowel is called the terminal ileum, which then leads on to the large bowel (colon). Normally most of the bile acids pass from the terminal ileum back into the bloodstream, ie they are reabsorbed into the bloodstream.

What is bile acid diarrhoea?

If the bile acids are not reabsorbed into the bloodstream then they enter the large bowel (colon). Bile acids in the large bowel cause abnormally high levels of water and salts to get into the large bowel from the bloodstream. The increased amount of water and salts in the large bowel then causes watery diarrhoea.

Bile acid diarrhoea is sometimes called bile acid malabsorption because the diarrhoea is caused by the body being unable to stop losing water and salts into the bowel.

What causes bile acid diarrhoea?

Bile acid diarrhoea may be caused by a number of diseases affecting the gut, especially the last part of the small bowel (terminal ileum), which then leads to the large bowel (colon). For example, bowel acid diarrhoea may be caused if your terminal ileum has to be removed or if you have a condition called Crohn's disease.

Other conditions that may lead to bile acid diarrhoea include having your gallbladder removed (cholecystectomy), coeliac disease, diseases affecting the pancreas, and after radiotherapy. Bile acid diarrhoea may also be caused by some medications, including metformin, which is used to treat type 2 diabetes.
However, many people who have bile acid diarrhoea do not have any obvious cause. This is called idiopathic bile acid diarrhoea, which means the cause is not known.

How common is bile acid diarrhoea?

It is estimated that bile acid diarrhoea affects about 1 in every 100 people. Bile acid diarrhoea is thought to affect about 1 in 3 people who are diagnosed as having irritable bowel syndrome. Bile acid diarrhoea in which the cause is unknown (idiopathic bile acid diarrhoea) most often occurs in men and women aged between 30 and 70 years.

What are the symptoms of bile acid diarrhoea?

There is often a long history of diarrhoea. See also the separate leaflet called Acute Diarrhoea in Adults.

The diarrhoea is usually watery without any blood. The diarrhoea may occur all of the time (continuous) or come and go (intermittent). There may be no other symptoms but this will depend on the cause of the bile acid diarrhoea.

How is bile acid diarrhoea diagnosed?

Bile acid diarrhoea if often diagnosed just by a having trial of a medicine used for treatment (see below). The medicines are usually very effective and so an improvement of diarrhoea when taking the medicine indicates a likely diagnosis of bile acid diarrhoea.

However, you will need to have blood tests and a stool (faeces) sample test to see if there are any other causes for the diarrhoea. There are also some specific tests for bile acid diarrhoea. These tests include:

- A test called $^{75}$Selenium homocholic acid taurine ($^{75}$SeHCAT), measuring the amount of bile acids in your stool; or
- A blood test for 7a-hydroxy-4-cholesten-3-one (C4). Increased levels indicate bile acid diarrhoea.

What are the treatments for bile acid diarrhoea?

The main treatments for bile acid diarrhoea are a low fat diet and taking a medicine called a bile acid binder. A low fat diet helps to reduce the symptoms of bile acid diarrhoea. Medicines that bind to bile acids in your gut (bowel) are usually very effective. Examples of bile acid binder medicines are colestyramine, colestipol or colesvelam. Colestyramine is the medicine most often used and is usually very effective. Colesevelam has been shown to be effective if treatment with cholestyramine is not successful.

Other medicines that are used to treat any cause of diarrhoea can also be used to treat bile acid diarrhoea. See the separate leaflet called Antidiarrhoeal Medicines for Acute Diarrhoea for more details.

What is the outcome (prognosis)?

Most people with bile acid diarrhoea in which cause is unknown (idiopathic bile acid diarrhoea) respond very well to treatment with a bile acid binder medicine. However, you may need to continue taking the medicine for a long time (years) in order to stop the diarrhoea.

Bile acid diarrhoea may be caused by an underlying condition affecting the bowel. The outcome will then depend on the underlying bowel condition.

Further reading & references


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