Bile Acid Malabsorption Treatment

Bile acid malabsorption It can result from malabsorption secondary to gastrointestinal disease, or be a primary disorder, associated with excessive bile acid production. Bile acid malabsorption (BAM), known also as bile acid diarrhea, is a cause of several gut-related problems, the main one being chronic diarrhea. It has Bile acid malabsorption (BAM), known also as bile acid diarrhea, is a cause of several gut-related problems, the main one being chronic diarrhea. It has also been called bile acid-induced diarrhea, cholerheic or choleretic enteropathy, bile salt diarrhea or bile salt malabsorption. Treatment with bile acid sequestrants is often effective 2456b8102a

Bile acid sequestrant treatment of chronic diarrhea due to bile acid malabsorption. In general, they are classified as hypolipidemic agents, although they may be used for purposes other than lowering cholesterol. Bile acid sequestrants are polymeric compounds that serve as ion-exchange resins. Bile acid The bile acid sequestrants are a group of resins used to bind certain components of bile in the gastrointestinal tract. They disrupt the enterohepatic circulation of bile acids by combining with bile constituents and preventing their reabsorption from the gut. They are used in the treatment of chronic diarrhea due to bile acid malabsorption 2456b8102a

Ileal sodium/bile acid cotransporter sodium/bile acid cotransporter, also known as apical sodium–bile acid transporter (ASBT) and ileal bile acid transporter (IBAT), is a bile acid:sodium Ileal sodium/bile acid cotransporter, also known as apical sodium–bile acid transporter (ASBT) and ileal bile acid transporter (IBAT), is a bile acid:sodium symporter protein that in humans is encoded by the SLC10A2 gene 2456b8102a

If there is impairment of any of the many steps involved in the complex process of nutrient digestion and absorption, intestinal malabsorption may ensue. If the abnormality involves a single step in the absorptive process... 2456b8102a Bile acid sequestrants are large polymeric structures, and they are not significantly absorbed from the gut into the bloodstream. Thus, bile acid sequestrants, along with any bile acids bound to the drug, are excreted via the feces after passage through the gastrointestinal... 2456b8102a Primary bile acids are those synthesized by the liver. Secondary bile acids result from bacterial actions in the colon. In humans, taurocholic acid and glycocholic acid (derivatives of cholic acid) and taurochenodeoxycholic acid and glycochenodeoxycholic acid (derivatives of chenodeoxycholic acid) are the major bile salts. The salts of their 7-alpha-dehydroxylated derivatives, deoxycholic acid and lithocholic acid, are also found, with derivatives of cholic, chenodeoxycholic and deoxycholic acids accounting for over 90% of human biliary bile acids. 2456b8102a A persistent (chronic) history of diarrhea, with watery or mushy, unformed stools (types 6 and 7 on the Bristol stool scale), sometimes with steatorrhea, increased frequency and urgency of defecation are common manifestations, often with fecal incontinence and other gastrointestinal symptoms such as abdominal swelling, bloating and abdominal pain. 2456b8102a

Vanishing bile duct syndrome Fatigue Anorexia Abdominal pain Weight loss Pruritus Hyperlipidemia Malabsorption Fat-soluble vitamin deficiencies Elevated alkaline phosphatase Elevated Vanishing bile duct syndrome is a loose collection of diseases leading to hepatic bile duct injury and eventual ductopenia 2456b8102a

Normally the human gastrointestinal tract digests and absorbs dietary nutrients with remarkable efficiency. A typical Western diet ingested by an adult in one day includes approximately 100 g of fat, 400 g of carbohydrate, 100 g of protein, 2 L of fluid, and the required sodium, potassium, chloride, calcium, vitamins, and other elements. Salivary, gastric, intestinal, hepatic, and pancreatic secretions add an additional 7–8 L of protein-, lipid-, and electrolyte-containing fluid to intestinal contents. This massive load is reduced by the small and large intestines to less than 200 g of stool that contains less than 8 g of fat, 1–2 g of nitrogen, and less than 20 mmol each of Na+, K+, Cl−, HCO−3, Ca2+, or Mg2+. 2456b8102a == Clinical use == 2456b8102a

Colestyramine eliminate bile acids is reduced. The functional group of the anion exchange resin is a quaternary ammonium group attached to an inert styrene-divinylbenzene copolymer. It was first Colestyramine (INN) or cholestyramine (USAN) (trade names Questran, Questran Light, Cholybar, Olestyr, Quantalan, Vasosan) is a bile acid sequestrant, which binds bile in the gastrointestinal tract to prevent its reabsorption. [citation needed] Colestyramine is commonly used to treat diarrhea resulting from bile acid malabsorption. It is a strong ion exchange resin, which means it can exchange its chloride anions with anionic bile acids in the gastrointestinal tract and bind them strongly in the resin matrix 2456b8102a

Bile acid Bile acids are conjugated with taurine or glycine residues to give anions called bile salts. Diverse bile acids are synthesized in the liver in peroxisomes Bile acids are steroid acids found predominantly in the bile of mammals and other vertebrates. Diverse bile acids are synthesized in the liver in peroxisomes. Bile acids are steroid acids found predominantly in the bile of mammals and other vertebrates 2456b8102a

== Signs and symptoms == 2456b8102a Bile acid sequestrants such as colestyramine were first used to treat high levels of cholesterol, but since the introduction of statins, now have only a minor role for this indication. They can also be used to treat the pruritus, or itching, that often occurs during liver failure and... 2456b8102a == Medical uses == 2456b8102a SeHCAT has been shown to be absorbed from the gut and excreted into the bile at the same rate as cholic acid, one of the major natural bile acids in humans. It undergoes secretion into the biliary tree, gallbladder and intestine in response to food, and is reabsorbed efficiently in the ileum, with kinetics similar to natural bile acids. It was soon shown to be the most convenient and accurate method available to assess and measure bile acid turnover in the intestine. SeHCAT testing was commercially developed by Amersham International... 2456b8102a Several medications to inhibit IBAT are under development. They include elobixibat, under development for the treatment of constipation and irritable bowel syndrome, and volixibat, under development for the treatment of nonalcoholic steatohepatitis. 2456b8102a

Colesevelam In Canada, it is marketed by Valeant as Lodalis. "Colesevelam for the treatment of bile acid malabsorption-associated diarrhea in patients with Crohn's disease: a randomized Colesevelam is a bile acid sequestrant administered orally. Breiteneicher S, et al. (November 2014).

It was developed by GelTex Pharmaceuticals and later acquired by Genzyme. It is marketed in the US by Daiichi Sankyo under the brand name Welchol and elsewhere by Genzyme as Cholestagel 2456b8102a

== Signs and symptoms == 2456b8102a Bile acid synthesis disorders may be classified as primary (originating from defects in the genes directly involved in bile acid synthesis) or secondary (from defects in genes for bile acid transport or for synthesis of metabolites needed for bile acid production). Major primary BASDs include 3β-hydroxy-Δ5-C27-steroid oxidoreductase deficiency, caused by mutations in the HSD3B7 gene; Δ4-3-oxosteroid 5β-reductase deficiency, caused by mutations in the gene AKR1D1 and; cerebrotendinous xanthomatosis, among others. These disorders are believed to be inherited in an autosomal recessive... 2456b8102a

Bile acid synthesis disorders BASDS can cause cholestatic liver disease (especially in infancy), interrupting or suppressing the flow of bile from the liver, as well neurological disease that will progressively worsen from childhood and/or adult life. These disorders can lead to the accumulation of abnormal bile acids and intermediary metabolites, causing damage to various organs, especially the liver. Bile acid synthesis disorders (BASDs) are rare metabolic disorders characterized by defects in the synthesis of bile acids, which are crucial for cholesterol Bile acid synthesis disorders (BASDs) are rare metabolic disorders characterized by defects in the synthesis of bile acids, which are crucial for cholesterol breakdown and the absorption of fats and fat-soluble vitamins 2456b8102a

Bile acids comprise about 80% of the organic compounds in bile (others are phospholipids and cholesterol). An increased secretion of bile acids produces an increase in bile flow. Bile acids facilitate digestion of dietary fats and oils. They serve as micelle-forming surfactants, which encapsulate nutrients, facilitating their absorption. These micelles are suspended in the... 2456b8102a ASBT/IBAT is most highly expressed in the ileum, where it is found on the brush border membrane of enterocytes. It is responsible for the initial uptake of bile acids, particularly conjugated bile acids, from the intestine as part of their enterohepatic circulation. 2456b8102a Colestyramine removes bile acids from the body by forming insoluble complexes with bile acids in the intestine, which are then excreted in the feces. As a result of this loss of bile acids, more plasma cholesterol is converted to bile acids in the liver to normalise levels. This conversion of cholesterol into bile acids lowers plasma cholesterol levels. 2456b8102a Bile acid sequestrants are polymeric compounds that serve as ion-exchange resins. Bile acid sequestrants exchange anions such as chloride ions for bile acids. By doing so, they bind bile acids and sequester them from the enterohepatic circulation. The liver then produces more bile acids to replace those that have been lost. Because the body uses cholesterol to make bile acids, this reduces the level of LDL cholesterol circulating in the blood. 2456b8102a People with this disorder often report impairments of mental health and well-being, including fatigue, dizziness, anxiety about leaving home (primarily due to fear of fecal incontinence), depression, one survey reports. It contributes in delays in diagnosis. 2456b8102a

SeHCAT a clinical test (the SeHCAT test) to diagnose bile acid malabsorption. This drug is used in a clinical test (the SeHCAT test) to diagnose bile acid malabsorption. This taurine-conjugated bile acid analog was synthesized for use as a radiopharmaceutical SeHCAT was used as the brand name for tauroselcholic acid (^{75}Se), also known as 23-seleno-25-homotaurocholic acid or selenium homocholic acid taurine 2456b8102a

== Mechanism == 2456b8102a == As a drug target == 2456b8102a Colesevelam is one of the bile-acid sequestrants, which along with niacin and the statins, are the three main types of cholesterol-lowering agents. The statins are considered the first-line agents. This is because of the larger body of evidence supporting statins' ability to prevent cardiovascular disease, as well as the prominent side effects from the other two types, including bloating and constipation (bile-acid sequestrants) and skin flushing (niacin). These side effects often... 2456b8102a

Malabsorption This may lead to malnutrition and a variety of anaemias. Fructose malabsorption Protein losing enteropathy "Malabsorption Malabsorption is a state arising from abnormality in absorption of food nutrients across the gastrointestinal (GI) tract. bile acid sequestrants will help with reducing diarrhoea in bile acid malabsorption. Impairment can be of single or multiple nutrients depending on the abnormality 2456b8102a

== Description == 2456b8102a The presentation is dependent upon the underlying cause. The course can be rapid or chronic. 2456b8102a == Development == 2456b8102a This taurine-conjugated bile acid analog was synthesized for use as a radiopharmaceutical to investigate in vivo the enterohepatic circulation of bile salts. By incorporating the gamma-emitter 75Se into the molecule, the retention in the body or the loss of this compound into the feces could be studied easily using a standard gamma camera, available in most clinical nuclear medicine departments. 2456b8102a Colesevelam is indicated as an adjunct to diet and exercise to reduce elevated low-density lipoprotein cholesterol (LDL-C) in patients with primary hyperlipidemia as monotherapy and to improve glycemic control in adults with type 2 diabetes mellitus, including in combination with a statin. The expanded use of colesevelam in adults with type 2 diabetes mellitus is an example of drug repositioning. 2456b8102a == Classification == 2456b8102a