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Alpha Glucosidase Inhibitors

Updated: May 13, 2013.

OVERVIEW

Alpha glucosidase is an intestinal brush border enzyme responsible for the hydrolysis of disaccharides which is necessary for the absorption of starch, dextrins and disaccharides. Inhibition of this enzyme causes malabsorption and slowing of absortion of carbohydrates and decreases the postprandial rise in blood glucose. These drugs may also increase the release of glucagon-like peptide-1 (GLP-1) which may contribute to their glucosing lowering effects. Alpha glucosidase inhibitors have been shown to be effective in improving glycemic control in type 2 diabetes. Two alpha glucosidase inhibitors have been approved for use in the United States, acarbose (Precose) in 1995 and miglitol (Glyset) in 1996. While these two agents have a similar mechanism of action, they have different chemical structures and pharmacokinetics. Acarbose is a modified bacterial enzyme that is not appreciably absorbed, while miglitol is a synthetic pseudopolysaccharide that is absorbed from the gastrointestinal tract. Both drugs are taken three times daily with meals (with the first bite) and cause mild carbohydrate malabsorption. Common side effects of both agents are flatulence, abdominal bloating and discomfort and diarrhea. Ironically, acarbose which has little systemic absorption, has been clearly linked to rare instances of clinically apparent liver injury, while no specific instances of such injury have been attributed to miglitol. For this reason, these two agents are discussed separately and references to their safety and potential hepatotoxicity given with each agent.

Drug Class: Antidiabetic Agents

Drugs in the Subclass, Alpha Glucosidase Inhibitors: Acarbose, Miglitol