

# REVIEW OF ACARBOSE THERAPEUTIC STRATEGIES IN THE LONG-TERM TREATMENT AND IN THE PREVENTION OF TYPE 2 DIABETES

AUTHOR: BREUER HW

SOURCE: INT J CLIN PHARMACOL THER 41 (10): 421-440 (2003)

The efficacy of acarbose (ACA) as long-term treatment and prevention of type 2 diabetes is reviewed. The clinical efficacy of acarbose is discussed with reference to its mechanism of action, placebo-controlled trial, surveillance studies. Combination therapy, long-term efficacy and safety and tolerability. The prevention of disease progression and cardiovascular disease are considered. The interactions of ACA with sulfonylurea, gliclazide, metformin, and insulin are also mentioned. ACA is a convenient and effective long-term option for the treatment of type 2 diabetes, with added benefit of reducing cardiovascular risk. ACA inhibits human pancreatic alpha-amylase and reduces overall glucose exposure. ACA therapy does not alter dietary patterns and increases the levels of several gastric polypeptides. ACA reduces HbA1c, postprandial plasma glucose, and fasting plasma glucose levels. ACA reduces triglyceride levels in patients with type 2 diabetes inadequately controlled with diet or diet plus sulfonylurea. ACA, but not gliclazide, decreases total cholesterol levels, while both treatments reduce LDL cholesterol levels. ACA decreases fasting insulin levels and postprandial insulin responses. Both ACA and metformin improve fasting plasma glucose, 1-hr postprandial plasma glucose and HbA1c levels. ACA and voglibose reduces 1-hr postprandial plasma glucose, serum insulin, and HbA1c levels in patients with type 2 diabetes. ACA in combination with diet or diet plus metformin, sulfonylurea, or insulin, improves metabolic control. ACA co-therapy with metformin reduces fasting and postprandial plasma glucose, and fasting insulin levels and AUC for insulin. In patients on a failing sulfonylurea regimen, ACA is associated with a higher response rate than placebo. No severe or fatal adverse events are attributable to ACA treatment. ACA does not induce weight gain, and has been associated with small weight loss. ACA plus sulfonylurea reduces the sulfonylurea-associated weight gain and ameliorates the sulfonylurea-induced increase in lipogenesis, triglyceride levels, and postprandial serum insulin concentrations. ACA reduces risk of cardiovascular events and impaired glucose tolerance, and mean systolic B.P.