Clinical Trial Eur J Pharmacol. 2015 Sep 5;762:96-101. doi: 10.1016/j.ejphar.2015.04.051.
Epub 2015 May 9.

Hydrogen gas production is associated with reduced interleukin-1β mRNA in peripheral blood after a single dose of acarbose in Japanese type 2 diabetic patients

Atsuko Tamasawa [1], Kazuki Mochizuki [2], Natsuyo Hariya [3], Miyoko Saito [1], Hidenori Ishida [1], Satako Doguchi [1], Syoko Yanagiya [4], Takeshi Osonoi [5]

Affiliations
PMID: 25962664 DOI: 10.1016/j.ejphar.2015.04.051

Abstract

Acarbose, an α-glucosidase inhibitor, leads to the production of hydrogen gas, which reduces oxidative stress. In this study, we examined the effects of a single dose of acarbose immediately before a test meal on postprandial hydrogen gas in breath and peripheral blood interleukin (IL)-1β mRNA expression in Japanese type 2 diabetic patients. Sixteen Japanese patients (14 men, 2 women) participated in this study. The mean±standard deviation age, hemoglobin A1c and body mass index were 52.1±15.4 years, 10.2±2.0%, and 27.7±8.0kg/m(2), respectively. The patients were admitted into our hospital for 2 days and underwent test meals at breakfast without (day 1) or with acarbose (day 2). We performed continuous glucose monitoring and measured hydrogen gas levels in breath, and peripheral blood IL-1β mRNA levels before (0min) and after the test meal (hydrogen gas: 60, 120, 180, and 300min; IL-1β: 180min). The induction of hydrogen gas production and the reduction in peripheral blood IL-1β mRNA after the test meal were not significant between days 1 (without acarbose) and 2 (with acarbose). However, the changes in total hydrogen gas production from day 1 to day 2 were closely and inversely associated with the changes in peripheral blood IL-1β mRNA levels. Our results suggest that an increase in hydrogen gas production is inversely associated with a reduction of the peripheral blood IL-1β mRNA level after a single dose of acarbose in Japanese type 2 diabetic patients.

Keywords: Acarbose; Hydrogen gas; IL-1β; Peripheral leukocytes; Type 2 diabetes.

Related information

MedGen
PubChem Compound (MeSH Keyword)

LinkOut - more resources

Full Text Sources
Elsevier Science
Ovid Technologies, Inc.

Medical