



Diabetics Have a 75% B1 Deficiency Leading to Vascular Problems

A thiamine (Vitamin B1) deficiency may be key to vascular problems for diabetic patients. FDA panel says Avandia offers benefits to people with type 2 disease, but.....

Thornalley and co-workers report that the thiamine concentration in blood plasma was decreased 76 per cent in type 1 diabetic patients and 75 per cent in type-2 diabetic patients.

Researchers at Warwick Medical School, University of Warwick, have discovered that deficiency of thiamine -- Vitamin B1 -- may be key to a range of vascular problems for people with diabetes. They have also solved the mystery as to why thiamine deficiency in diabetes had remained hidden until now.

Diabetes is increasing in incidence in the U.S. and elsewhere and one of the most significant health problems associated with the condition are vascular complications: microvascular complications, such as damage to the kidney, retina and nerves in arms and legs; and macrovascular complications, such as heart disease and stroke.

The University of Warwick researchers, led by Professor Paul Thornalley, have shown conclusively that diabetic patients are thiamine deficient in blood plasma. They were also able to solve the mystery of what was happening to thiamine in diabetic patients and connect it more closely to vascular complications in diabetic patients.

In a paper entitled "High prevalence of low plasma thiamine concentration in diabetes linked to a marker of vascular disease," published in *Diabetologia* on 4th August, the team found that thiamine concentration in blood plasma was decreased 76% in type 1 diabetic patients and 75% in type 2 diabetic patients.

This significant decrease had been previously masked as the conventional way of assessing levels of thiamine status was to measure the activity of an enzyme called transketolase in red blood cells. Past studies had seen normal activity of this enzyme and assumed normal levels of thiamine when in fact the normal enzyme activity was due to increased amounts of two proteins THTR-1 and RFC-1 that help transport thiamine into red blood cells. The increased levels of these proteins were a direct response to there being a deficiency of thiamine in the body.

The researchers found that the decreased availability of thiamine in vascular cells in diabetes was linked to a marker of microvascular and macrovascular complications. It likely reflects problems in endothelial cells (endothelial cells line the body's entire circulatory system) and increased risk of atherosclerosis (chronic inflammation in the artery walls).

The researchers found that the decreased plasma thiamine concentration in clinical diabetes was not due to a deficiency of dietary input of thiamine. Rather it was due to a profound increased rate of removal of thiamine from the blood into the urine.

The researchers feel that important areas for future study are: confirmation of low plasma thiamine concentrations in diabetic populations of other countries independent of local diet; the evaluation of thiamine and thiamine derivatives to correct low plasma thiamine concentration in diabetes, reverse vascular dysfunction and prevent vascular complications; and investigation of the mechanism of increased removal of thiamine from the blood into the urine in diabetes.

Published on-line ahead of print, doi: 10.1007/s00125-007-0771-4
"High prevalence of low plasma thiamine concentration in diabetes linked to a marker of vascular disease" P.J. Thornalley, R. Babaei-Jadidi, H. Al Ali, N. Rabbani, A. Antonysunil, J. Larkin, A. Ahmed, G. Rayman and C.W. Bodmer

=====

Advertisement

Can you imagine your patients walking pain free? Now you can offer them hope and treatment for their pain caused by Neuropathy. The ReBuilder(r) is an FDA approved medical device that rebuilds your nerves to stop numbness and pain, increases blood flow to your legs and feet to support the nutritional needs of these newly awakened nerves, and increases calf muscle strength to restore your mobility. The ReBuilder(r).

works extremely well for patients that suffer from Chemotherapy induced Neuropathy.

[Click here for more info...](#)

This article came from

http://www.diabetesincontrol.com/index.php?option=com_content&view=article&id=5045

Please visit Diabetes In Control for the most current news in Diabetes care.

www.diabetesincontrol.com