

BLOOD GLUCOSE LEVELS DON'T RISE AFTER CORTISOL ADMINISTRATION IN ALZHEIMER'S DISEASE PATIENTS

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Cortisol is secreted by the adrenal glands when a person is facing a stressful situation. It stimulates a rise in blood glucose levels, to run faster when facing a lion, for example.

HyperCortisolemia in Alzheimer's Disease (AD) [1] is thought to be not just a consequence but to have a role in the manifestation of the disease [2].

It is been reported that glucocorticoid administration increases Amyloid Beta formation and augments tau accumulation inside the brain [2], explaining how cortisol overflow could be the cause for the main hallmarks of the disease.

Another study researched cortisol and its impact on hippocampal glucose metabolism [3], but also found something else, something the research team barely mentioned.

They have found that cortisol administration led to a rise in blood glucose levels, but only in the control group and not among Alzheimer's patients.

"Blood collected during the positron emission tomography scans showed, for the normal group, a rise in plasma glucose levels, starting approximately 25 min after hydrocortisone administration. The AD group did not show this effect..." [3].

This abnormality lies in the most basic process of cortisol secretion leading to a rise in blood glucose levels. Plenty of research centers around Cortisol in AD but I couldn't find anywhere else any mention of this so basic malfunction.

I urge further research, to examine if blood glucose levels in AD patients are in fact not responding to cortisol secretion (or administration). This could bring new ideas on how to solve this impairment and solving it could perhaps prove beneficial for AD treatment as a whole.

REFERENCES

1. Lei JK. Change of serum ACTH and cortisol levels in Alzheimer disease and mild cognition impairment. *Zhonghua Yi Xue Za Zhi* 2010;90:2894-6.
2. Green KN, Billings LM, Roozendaal B, McGaugh JL, LaFerla FM. Glucocorticoids increase amyloid- β and tau pathology in a mouse model of Alzheimer's disease. *J Neurosci* 2006;26:9047-56.
3. de Leon MJ, McRae T, Rusinek H, Convit A, De Santi S, Tarshish C, *et al.* Cortisol reduces hippocampal glucose metabolism in normal elderly, but not in Alzheimer's disease. *J Clin Endocrinol Metabol* 1997;82:3251-9.