ORAL GALACTOSE TREATMENT IMPROVES METABOLIC CHANGES IN A RAT MODEL OF SPORADIC ALZHEIMER'S DISEASE

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OBJECTIVES

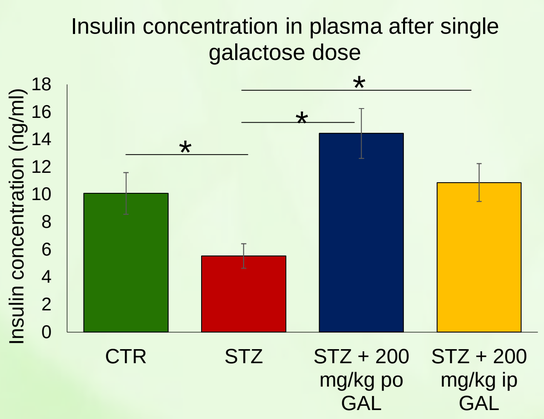
Chronic oral galactose treatment improves learning and memory functions in streptozotocin-induced (STZ-icv) rat model of sporadic Alzheimer's disease (sAD), contrary to its parenteral administration, as shown in our previous research. We aimed to explore the effects of long- and short-term oral galactose treatment on metabolic changes in STZ-icv rat model.

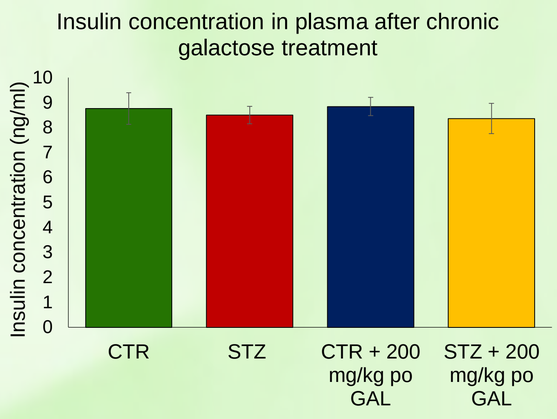
MATERIALS & METHODS

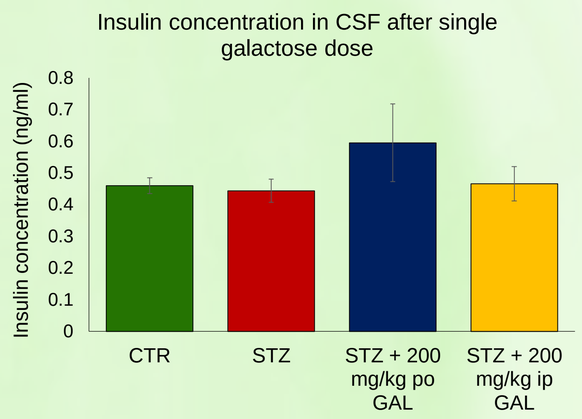
Adult male Wistar rats were given STZ-icv (3 mg/kg) while controls received vehicle only. Oral galactose treatment (200 mg/kg) was initiated 1 month after icv injections and continued for 2 months on daily basis until sacrifice (long-term). In a single-dose experiment animals were sacrificed 15 min after the oral or intraperitoneal galactose treatment (200 mg/kg), performed 1 month after icv injection. Insulin and glucagon-like peptide 1 (GLP-1, active/total) were measured by ELISA in plasma and cerebrospinal fluid (CSF). Data were analyzed by Kruskal-Wallis and Mann-Whitney U-test ($p<0.05$).

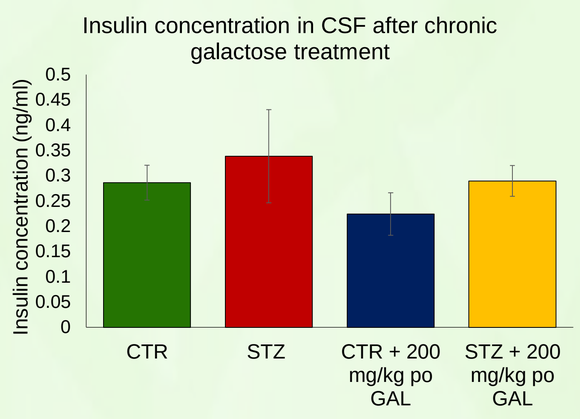
RESULTS

Decreased plasma insulin levels found after 1 month in STZ-icv rats were normalized to the control level after a single oral galactose dose. Unchanged CSF insulin levels in STZ-icv rats were found regardless the galactose treatment.

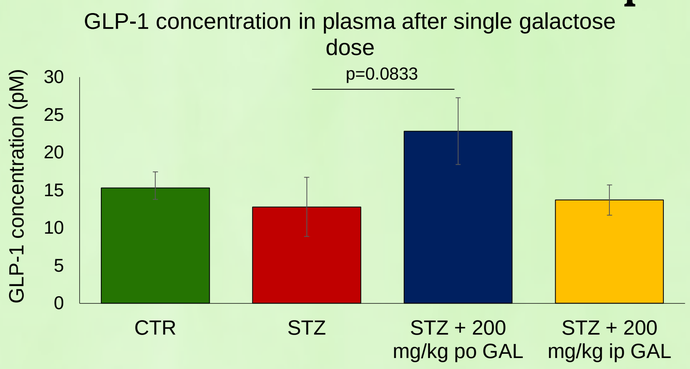


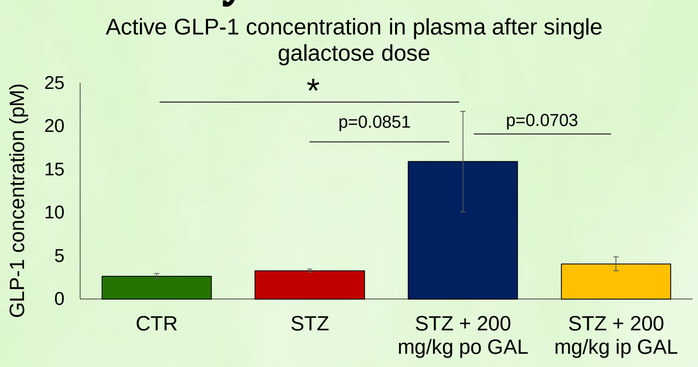


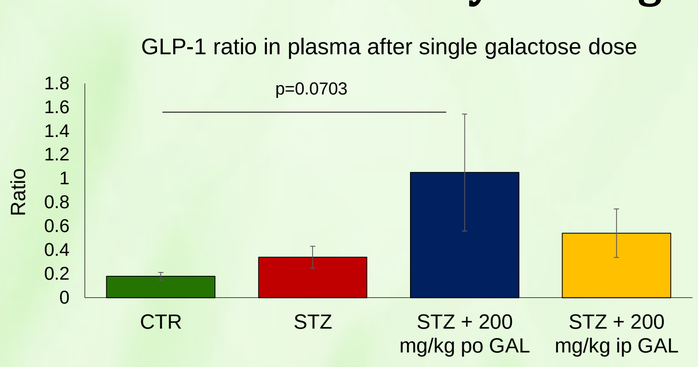


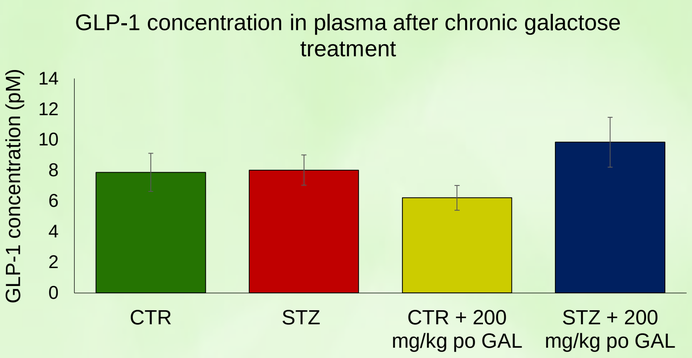


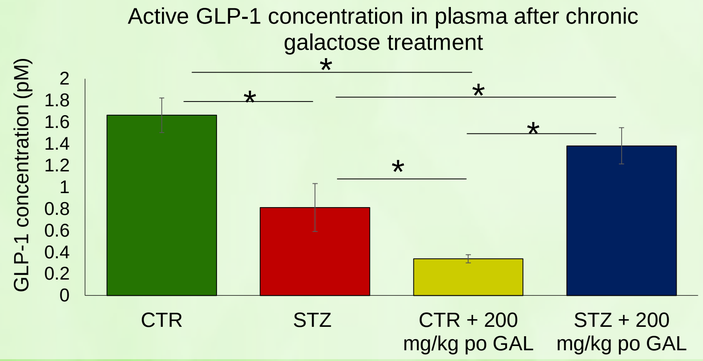
Plasma GLP-1 activity was unchanged in STZ group after one month and decreased 3 months after icv treatment. Single oral galactose dose tended to increase plasma GLP-1 activity while chronic treatment normalized GLP-1 activity in STZ group.

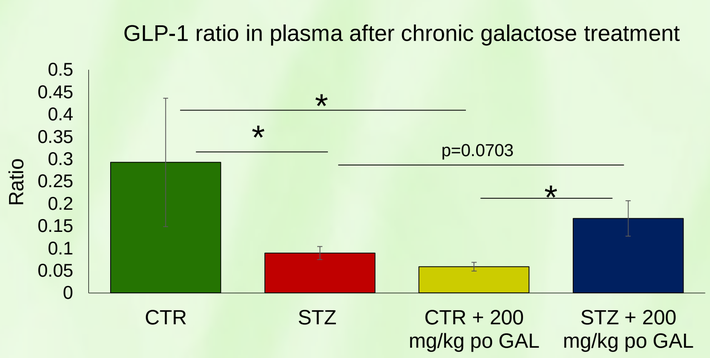












CONCLUSION

ORAL GALACTOSE IMPROVES METABOLIC CHANGES INDUCED IN A NON-TRANSGENIC RAT MODEL OF sAD FOLLOWED UP TO 3 MONTHS POST STZ-ICV TREATMENT

ACKNOWLEGMENTS

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