

P01-499

CHANGE OF LEARNING AND MEMORY ABILITY AND IGF-1 LEVEL IN TYPE 3 DIABETES RATS AND EFFECT OF ANALOG P165 OF APP 5-MER PEPTIDE

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Objective: To investigate the effect of Analog P165 of APP5-mer peptide on change of learning and memory ability in type 3 diabetes rats.

Method: Healthy adult male rats were randomly divided into 3 groups: Control group; type 3 diabetes (T3DM) group; T3DM administrated P165 group. T3DM models were induced by intracerebroventricular injection of Streptozotocin (STZ, 3mg/kg) bilaterally. P165 groups were treated with gastric P165 (355µg/kg) Then, learning and memory ability was detected by Morris water maze test. Body weight and serum glucose were recorded. The rat serum Insulin, Glucagon, insulin-like growth factor-1 (IGF-1) was detected by ELISA method.

Results: In the Morris water maze test, compared with control group, the escape latency increased significantly ( $p < 0.05$ ) in model group at the 3<sup>rd</sup> day. Compared with model group, the escape latency decreased significantly ( $p < 0.05$ ) in the models administrated P165 group at the 3<sup>rd</sup> day. Although there was no significant difference, the escape latency decreased in P165 group at the 4<sup>th</sup> and 5<sup>th</sup> day. From the result of rats blood serum detection, the serum IGF-1 level decreased significantly in the model group ( $p < 0.01$ ) than the control group. The serum IGF-1 level increased significantly in P165 treated group ( $p < 0.05$ ). The body weight and the serum glucose, insulin, glucagon had no significant difference among the groups in the period of experiment.

Conclusion: There is learning and memory impairment in the T3DM rats. P165 can raise the rats blood serum IGF-1 level, ameliorate learning and memory ability but don't influence the serum glucose.