

Poster presentation

Intra CA1 insulin microinjection improves memory consolidation

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Background

Although the brain was considered as an insulin-insensitive organ, a recent study has shown that insulin receptors exist in the brain and insulin modulates some of the brain tasks [1]. Insulin and its receptors are found in specific areas of CNS with a variety of region specific functions different from its direct glucose regulation in the periphery. The hippocampus and cerebral cortex distributed insulin/insulin receptor has been shown to be involved in brain cognitive functions [2]. The improving effect of insulin on spatial memory acquisition has been showed [3]. In present study, the effect of insulin microinjection into the CA1 region of rat hippocampus on spatial memory consolidation has been investigated.

Materials and methods

Rats were cannulated in the CA1 region of their hippocampus. One week after surgery, the rats were trained in the Morris water maze. The single training session consisted of eight trials. After training, rats received bilateral injections of vehicle (saline) or insulin (0.5, 6, 12 MU) through the cannulae. 24 hours later probe test was done.

Results

The results showed that post training 12 MU insulin injection significantly increased the time spent in target quadrant ($p < 0.01$), distance traveled in target quadrant ($p < 0.01$) and % entries to target quadrant ($p < 0.01$).

Conclusions

On the basis of present data, it is concluded that 12 MU insulin (but not 0.5 and 6 MU) improved memory consolidation.

References

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