

Influence of bariatric surgery on the morphologic and biochemical characteristics of corpus cavernosum in the type 2 diabetic rat

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The incidence of erectile dysfunction (ED) induced by type 2 diabetes mellitus (T2DM) has been growing as the increasing number of people with T2DM is caused by insulin resistance which is related with obesity. Recently, bariatric surgery was introduced as one of the effective treatment options for obesity related T2DM. However, the effect of bariatric surgery on the erectile function is lacking. So, we studied the morphologic and biochemical characteristic of corpus cavernosum in OLETF rat undergone bariatric surgery.

OLETF (n=15) male rats were assigned to 2 groups: Group I (undergone sham operation, n=5) and Group II (undergone gastric bypass surgery, n=10). At 4-week operation, intraperitoneal glucose tolerance test (IPGTT) was performed. Histologic evaluation of corpus cavernosum was done by H&E and Masson's trichrome staining at 4-week operation. In addition, western blot analysis of eNOS, nNOS and Rho kinase were done in corpus cavernosum. The level of 8-OHdG was measured in corpus cavernosum.

The body weight of Group II was lower than Group I, however, there was no significance. The IPGTT of Group II was also lower than Group I and the significant differences were observed only at 120 minutes after (222.5 ± 66.4 mg/dl vs. 149.5 ± 10.9 mg/dl, $p < 0.05$). Significant higher smooth muscle/collagen ratio was observed in Group II ($18.1 \pm 15\%$) than Group I ($39.1 \pm 24\%$) ($p < 0.05$). The significant increased expressions of eNOS and nNOS were observed in Group II ($p < 0.05$). And significant decreased expression of Rho kinase was observed in Group II ($p < 0.05$). The 8-OHdG level of Group II was significantly decreased ($p < 0.05$).

In this study, the body weight loss and improvement of blood glucose level, the morphological and biochemical improvement were observed after operation. We suppose that ED associated T2DM can be restored with the help of bariatric surgery.

Biography

Yong Sun Choi has completed his bachelor's degree in 2003 and master's degree in 2006 from The Catholic University of Korea, College of Medicine. He is the clinical fellow of Seoul St. Mary's Hospital since 2011.

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