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AB139. Studies on the mechanism of testicular dysfunction in the early stage of a streptozotocin induced diabetic rat model

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Abstract: Streptozotocin (STZ) induced diabetic model has been widely used to study the effects of diabetes mellitus (DM) on male infertility, but it remains unclear whether the responses in this model are due to hyperglycemia or STZ per se. This study was designed to investigate the mechanism of STZ on testicular dysfunction. In the present study, sperm characteristics, serum testosterone, steroidogenic enzymes (StAR and 3β-HSD), and the vimentin apical extension of sertoli cells decreased significantly in the STZ group compared with those in the normal controls ($P<0.05$), while Johnsen's score, testicular lipid peroxidation, spermatogenic cell apoptosis, and the expressions of NF-κB and Wnt4 significantly increased ($P<0.05$). Insulin replacement mainly restored the decreased serum testosterone and steroidogenic enzymes, but not other parameters. The results indicated that spermatogenic dysfunction in the earlystage of STZ-induced diabetic rats was due to direct STZ cytotoxity to sertoli cells, which could be regulated by Wnt4 and NF-κB, while steroidogenic dysfunction might be a direct or indirect consequence of insulin deficiency. The results suggested that STZ-induced diabetic model, at least in the early stage, is not suitable to study the diabetes-related spermatogenic dysfunction.

Keywords: Streptozotocin (STZ); diabetes mellitus (DM); male; infertility; model

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AB140. Protective effects of insulin on erectile function in rats with streptozotocin-induced diabetes

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Objective: To investigate the therapeutic effects of insulin on erectile dysfunction (ED) in a rat model with streptozotocin-induced diabetes.

Materials and methods: The diabetic erectile dysfunction (DMED) rat model was made by injecting the male 8-week-old Sprague-Dawley rats intraperitoneally with vehicle or freshly prepared 60 mg/kg streptozocin, and blood glucose level was measured in the later experiments. Then the rats were divided into three groups: the normal control group (N), the diabetes group (DM) and the diabetes plus insulin therapy group (DM + insulin). Eight weeks after STZ injection, the DM + insulin group were treated with 2-6 units of neutral protamine Hagedorn twice a day for 4 weeks through subcutaneous injection. After the final treatment, all rats were tested for erectile function by measuring the intracavernous pressure and mean arterial pressure (ICP/MAP), and the penile was harvested for histology study.

Results: Although the glycemic level was tightly controlled by insulin in the therapy group, ICP/MAP level was partially restored compared to the normal control group,

