Expression of receptor advanced glycosilation end product (RAGE) and active caspase-3 of the streptozotocin-induced chronic diabetes mellitus Sprague Dawley ratsÃ¢Â€Â™ sperm with soybean (Glycin max) powder suspension treatment

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Abstract	Diabetes mellitus (DM) affects all the process of spermatogenesis. Chronic hyperglycemia in DM increases the expression of receptor for advanced glycosilation end products (RAGE) that is responsible for the activation of signal production of reactive oxygen species (ROS) and caspase 3. Active caspase 3 plays an important role in cell apoptosis. Soybean (Glycin max) is reported to have antihyperglycemic and antiadvanced glycosilation end products (antiAGE) and antioxidants activities. The aim of this study was to evaluate the effect of soybean powder suspension on the expression of RAGE and active caspase 3 of diabetic ratsÃ¢Â€Â™ sperm. This was an experimental study with post test only control group design using 30 male Sprague Dawley rats, aged 11-12 weeks old and weighed 200-250g. The rats were divided into five groups with six rats in each group. Group 1 was non diabetic rats andÃ‚Â Group 2 was diabetic rats that were given aquadest. Group 3-5 were diabetic rats that were given a soybean powder suspension at dose of 400; 800 and 1600 mg/kg body weight (BW)/day, respectively. Diabetic rats were made by induction of a single intraperitoneal injection of streptozotocin (STZ) at a dose of 60 mg/kg BW. Soybean powder suspension was ingested for four weeks after 14 days STZ induction. Blood glucose levels were monitored before and three days after STZ induction and four weeks after suspension ingestion. The expression of RAGE and active caspase-3 were analyzed using immunohistochemistry method four weeks after suspension ingestion. The results showed that soybean powder suspension ingestion significantly decreased blood glucose level of diabetic rats toward normality ($p<0.05$). However, the expression of RAGE and active caspase-3 in diabetic ratsÃ¢Â€Â™ sperm were not significantly lower than those after suspension ingestion. In conclusion, soybean powder suspension does not significantly affect the expression of RAGE and active caspase-3 in diabetic ratsÃ¢Â€Â™ sperm.
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