

P21

The effect of the chitosan-glucan complex on healing process of excisional wounds in healthy and streptozotocin-induced diabetic rats.

Valentova Zuzana, Karol Svik, Jan Kucera, Vladimir Velebny
CPN s.r.o., Dolni Dobrouc, Czech Republic

Objective: Insulin-dependent diabetes is a chronic disease characterized by hyperglycemia. The chitosan-glucan complex is a composition of matter isolated from the mycelia of the fungus. **Purpose:** To study the influence of chitosan-glucan complex on the excisional wound healing process in healthy and streptozotocin(STZ)-induced diabetic rats. **Methods:** In the study 48 male Wistar rats were used, divided into 4 groups: untreated non-diabetic healthy control (group 1); treated non-diabetic (group 2); untreated diabetic (group 3); and treated diabetic (group 4). In rats from groups 3 and 4, type 1 diabetes was induced by intraperitoneal injection of 40mg/kg STZ in ice-cold 0.5mol/l citrate buffer (pH 4.5) two times. Blood glucose levels were monitored from the tail vein using a glucometer. A wound was made on the back of each animal. Groups 2 and 4 were treated with the chitosan-glucan complex. Three animals from each group were sacrificed on the 1st, 3rd, 6th and 9th day after wounding. In each rat healing wound area was measured, followed up with both macroscopic morphology and histological examination. The data were treated statistically using one-way analysis of variance (ANOVA). **Results:** The results obtained from the samples taken on the third, sixth and ninth day after wounding demonstrated, that groups treated with the chitosan-glucan complex presented a statistically significant ($p < 0.001$) decrease of wound areas when compared with both untreated diabetic and non-diabetic rats. Macroscopic morphology and histological analysis confirmed the improvement in wound healing in treated groups. **Conclusion:** The results of experimental study in rats show that the chitosan-glucan complex may have a beneficial effect on the healing process of skin wounds both in the non-diabetic and the diabetic group.