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XIV ВСЕУКРАЇНСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ СТУДЕНТІВ, АСПІРАНТІВ ТА ВИКЛАДАЧІВ ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ КАФЕДРИ ІНОЗЕМНИХ МОВ

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STREPTOSOTZIN DIABETES MODEL

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Diabetes mellitus (DM) is a widespread disease leading to the development of serious complications, disability and premature death. A mandatory factor in the pathogenesis of type 1 diabetes is absolute insulin deficiency, leading to characteristic metabolic disorders. The fundamental treatment of Type 1 diabetes costs a lot of millions dollars every year for the past 100 years. Medicine spends a huge amount of money for daily insulin injections. Insulin therapy prevents death of patients from hyperglycemic coma, but doesn't prevent the development of severe chronic complications. That is why, the search of more effective and preferably cardinal ways for antidiabetic treatment is extremely important. Great attention is paid to experiments on animals with experimental diabetes.

The first model of diabetes was obtained in 1889 (Mering, Minkowski) as a result of removal of the pancreas in a dog. Later it was found that experimental diabetes can be obtained not only by pancreatectomy, but also after the introduction of various chemicals that destroy the insulin-producing β-cells of the pancreatic islets. Alloxan, streptozotocin (STC), dehydroascorbic acid or dithizone can be used. Each of which selectively causes β-cell necrosis, preserving (unlike pancreatic ectomy) exocrine pancreatic function. Streptozotocin model of diabetes is the most popular. STC was first described in late 1950s as a promising antibiotic with antitumor activity, but it was used mainly as a diabetic drug due to its toxic side effect on pancreatic β-cells. In structure, it resembles sugar molecules, and this is enough to be captured and absorbed by cells using the glucose transporter GLUT2. The range of diabetic doses of STC is quite wide, ranging from 40 to 90 mg per 1 kg of body weight. A frequently used single intravenous dose in adult rats to induce IDDM of insulin-dependent diabetes is from 40 up to 60 mg / kg, but higher doses are also used. An intraperitoneal administration of a similar or higher dose is also effective, but a single dose below 40 mg / kg body weight may be ineffective.