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## RESULTS OF PILOT HEARING SCREENING IN SCHOOLCHILDREN IN AZERBAIJAN

Institute of Physiology and Pathology of Hearing, Warsaw, Poland

(scientific advisor - prof. Skarzynski H.)

The Institute of Physiology and Pathology of Hearing, provided many hearing screening programs in few screened around 500000 children.

to evaluate level of hearing impairments, central disorders and tinnitus among them and also awareness of parents hearing among their children. Hearing Screening pilot program was performed in Azerbaijan in October 2013.

involved in investigation used Pure Tonal Audiometry, Central tests (DDT and GDT) and questionnaires (special parts parents) on Sensory Examination Platform. Program was dedicated to 253 children from Primary School in Baku, Azerbaijan, from two age groups: 6-7 years old and 12-13 years old.

results for PTA 19,3%. Over 16% of children had to be immediately consulted by otolaryngologist. There was also big number of children with cholesteatoma suspicion.

hearing program in school children revealed quite huge problem with hearing among teenagers in Azerbaijan. Early

hearing impairments and potential middle ear disorders is crucial for early start of treatment. We continue screenings

in other countries and continents.

Grytsiuk M.I., Navchuk D.I.

## STREPTOZOTOCIN MODEL OF DIABETES MELLITUS

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Department of Social Medicine and HCO

(scientific advisor - M.D. Grytsiuk M.I.)

Diabetes mellitus is a group of metabolic diseases in which a person has high blood sugar, either because the body does not produce enough insulin, or because cells do not respond to the insulin that is produced. This high blood sugar produces the classical symptoms of polyuria, polydipsia and polyphagia. There are two main types of diabetes mellitus (DM) (T.S.Min, S.H.Park, 2010). Type 1 diabetes results from the body's failure to produce insulin, and presently requires the person to inject insulin or wear an insulin pump. Type 1 was previously referred to as "Insulin-Dependent Diabetes Mellitus" (IDDM) or "Juvenile Diabetes". Type 2 DM results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency. This type was previously referred to as Non Insulin-Dependent Diabetes Mellitus (NIDDM) or "Adult-Onset Diabetes" (R.Sharma, V.Dave 2013).

Researchers use different animal models for studying DM – chemical, genetic, surgical. Among them streptozotocin is one of the most common chemical model.

The first report of streptozotocin (STZ: N-nitroso derivative of glucosamine) was published in 1963. STZ was used as a chemotherapeutic agent for cancer based on its inhibition of DNA synthesis in mammalian and bacterial cells. The biochemical mechanism of STZ action on the pancreatic cell via a glucose transporter-GLUT2 and causes alkylation of DNA. Furthermore STZ induces activation of protein tyrosine phosphatase and adenosine diphosphate ribosylation and nitric oxide release. As a result of STZ action, pancreatic cells are destroyed by necrosis (S. S. Bhatia, G.Yoshimatsu et al., 2012).

In adult rats, 60 mg/kg is the most common dose of STZ to induce insulin dependent diabetes, but higher doses are also used. The dose of STZ varies depending on the animal species. Usually STZ is administered intraperitoneally, but intravenous way is also used as well. Single doses below 40 mg/kg in adult mice, STZ given in multiple lowdoses (40 mg/kg, i.v. for 5 days) induces an insulin dependent diabetes that is similar to the autoimmune forms of Type 1 diabetes (Etuk E.U., 2010). Another animal model of Type 2 diabetes has been produced by combination of STZ and NAD administration in adult rats. The rats administered NAD (230 mg/kg) 15 min before STZ (65 mg/kg) has been shown to develop moderate and stable non-fasting hyperglycaemia without any significant change in plasma insulin level. As NAD is an antioxidant which exerts protective effect on the cytotoxic action of STZ by scavenging free radicals and causes only minor damage to pancreatic beta cell mass producing Type 2 diabetes (K.Srinivasan, S. Ganarao, 2007).

Thereby, STZ (applied not only to rats but also many other kinds of mammals including mouse, monkey, and dog) can be useful as an easy model for researches for better understanding of the disease mechanisms in much closely similar human situation as well as for discovering newer targets and drugs for the treatment of DM and its complications.