Optimal regimens of the basal-bolus insulin therapy in adolescents with diabetes mellitus of type 1

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INTRODUCTION
To achieve the optimal glycaemic control in adolescents with type 1 diabetes mellitus (DM1) is a difficult task. The reason is a low compliance of teenagers caused by psychoemotional peculiarities as well as decreased insulin sensitivity due to a physiologically high concentration of contrainsular hormones (androgens, growth hormone, etc.)1,2,3.

OBJECTIVES
This study was aimed to determine peculiarities in regimens of the pump insulin therapy that are necessary for achieving treatment goals in adolescents with DM1.

RESULTS
Compared with patients in group 2, adolescents in group 1 had significantly higher average total daily dose of insulin, average daily dose of basal insulin (p=0.038, p=0.019) (Fig. 1).

METHODS
68 adolescents at the age of 14-18 with DM1, who received continuous subcutaneous infusion of insulin (CSII) from 6 months to 6 years, were examined. The patients were subdivided into 2 groups: 1 - adolescents with the optimal and suboptimal metabolic control (n=46), 2 - adolescents with long-standing poorly controlled DM1 (n=22).

RESULTS
The average basal-to-bolus ratio from group1 patients was 51/49%, compared with group2 patients - 45/55% (Fig. 2)
Prevalence of bolus insulin in adolescents with poorly controlled DM1 was caused by frequent use of correction boluses in order to lower postprandial hyperglycemia resulting from the excessive intake of carbohydrates.

Group2 patients had a low level of skills which did not allow them to use additional functions of the pump.

A large part of group1 patients adapted pump settings on their own according to their individual peculiarities, physical activity, etc.

CONCLUSIONS
Thus, well-balanced basal-to-bolus ratio in adolescents on CSII, which can provide improvements in blood glucose management is 51/49%. An important condition is also a high level of compliance and skills of patients, intention to control actively the disease.

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