Of Combined Sugar- Reducing Thepary in Treatment of Patients with Type 2 Diabetes

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ABSTRACT

Type 2 diabetes mellitus (DM) is one of the most common noncommunicable diseases on the globe. If at present the number of patients with diabetes in the world is 347 million people, then by 2025, according to scientists, this figure will reach at least 592 million, of which 90% will be in diabetes. Global trends in the incidence of type 2 diabetes are also observed in Uzbekistan.

The total number of patients with diabetes in Uzbekistan amounted to 230610 (706.24 per 100 thousand people), of which type 1 diabetes – 18349 (56.2 per 100 thousand people), type 2 diabetes – 212261 (650,0 per 100 thousand people). As a percentage, patients with type 1 diabetes of the total number of patients with diabetes is 8.0%, patients with type 2 diabetes are 92.0%.

Maintaining a constantly normal or near normal concentration of glucose in the blood slows down the onset and progression of late complications of type 2 diabetes.

In the absence of achieving the target glycemic values against the background of the use of a rational combination of oral hypoglycemic drugs, it is shown that baseline action is added to insulin treatment to suppress liver gluconeogenesis and normalize fasting glucose. The combination of sulfonylurea derivatives and basal insulin has been well studied and has proven. In addition, the combined use of metformin and insulin was widely used in the treatment of patients with type 2 diabetes mellitus, however, at present there is no evidence base in favor of their joint appointment.

Keywords: diabetes

Objective: to study the efficacy and safety of the combined use of insulin and various doses of metformin to optimize the therapy of patients with type 2 diabetes mellitus.

Material and methods. To compare the effectiveness of combined treatment with basal insulin and metformin at various doses and hypoglycemic therapy without metformin. To assess the risk of developing hypoglycemic conditions when prescribing hypoglycemic therapy without metformin and a combination of basal insulin (BI) with various doses of metformin. To study the dynamics of anthropometric parameters in patients with type 2 diabetes against the background of compared variants of hypoglycemic treatment. To carry out a comparative analysis of the dynamics of the state of lipid metabolism against the background of a combination of basal insulin with metformin at various doses and therapy without metformin. To determine the need for basal-acting insulin against the background of the compared options for hypoglycemic therapy. Conduct a pharmacoeconomic cost-effectiveness analysis in patients treated with comparable hypoglycemic treatment options. To achieve

this goal, namely, to determine the feasibility of combined administration of metformin and basal-acting insulin to patients with type 2 diabetes, among patients who were hospitalized at the Republican Specialized Scientific And Practical Medical Center Of Endocrinology Named After Academic Y.Kh. Turakulova Samarkand regional branches. We selected 120 patients with DM2 who had not previously received insulin therapy and lipid-lowering drugs. Only 23.3% (n=28 out of 120) of patients received combination therapy with oral hypoglycemic drugs before admission to the hospital, the remaining 76.7% of patients (n=92 out of 120) took only sulfonylurea derivatives.

Results of the study. The results of comparing the baseline characteristics of patients indicate that the duration of the disease was accidentally higher in patients from groups 1 and 3. Perhaps this is the reason for the fact that in the first and third groups the number of patients who required short-type insulin action was higher than in group 2.

The results of our study indicate that the correction of ongoing hypoglycemic therapy led to a significant decrease in fasting glycemia in all observed patients both after 6 months and after 1 year. When compared between groups of results obtained after 6 months, there was no statistically significant difference in fasting glycemia (FG). At the same time, when analyzing after 1 year, it turned out that in patients from groups 1 and 2, GN was significantly lower compared to the same indicator in group 3 in patients who did not take metformin in addition to other hypoglycemic therapy (5.9+0.5 vs. 6.5+0.5, $p<0.001$ and 6.2+0.7 vs. 6.5+0.5, $p<0.05$). The reduction in GN resulted in an improvement in the overall glycemic profile and in a reduction in HbAlc in all treatment groups. A significant difference in indicators was revealed only when comparing the results between groups 1 and 3 after 1 year of follow-up (7.4±0.4 vs. 7.8±0.5; $p<0.001$). Thus, our data indicate that in patients taking metformin, regardless of its dose, GN decreased significantly more pronounced after 1 year compared to patients who did not take the drug. At the same time, a significant difference in HbAlc was recorded only in patients receiving a higher dose of metformin (2000-3000 mg / day.) The results indicate that a favorable effect on the glycemic profile as a whole was recorded only in patients taking metformin in dose of 2000-3000 mg / day. in combination with insulin. When conducting an analysis in subgroups of patients who received sulfonylurea derivatives or CI in combination with other hypoglycemic therapy, it was found that the use of metformin at a dose of 2000-3000 mg / day. effectively reduces GN and HbAlc compared with the use of metformin at a dose of 500-1500 mg / day. and monoinsulin therapy / therapy with sulfonylurea derivatives + basal insulin.

When conducting an analysis in subgroups of patients who received sulfonylurea derivatives or CI in combination with other hypoglycemic therapy, it was found that the use of metformin at a dose of 2000-3000 mg / day. effectively reduces GN and HbAlc compared with the use of metformin at a dose of 500-1500 mg / day. monoinsulin therapy / therapy with sulfonylurea derivatives + basal insulin. Our data suggest that after 1 year the percentage of patients with HbA1c<7.5% was significantly higher in the group of patients treated with metformin at a dose of 2000-3000 mg per day as part of combination therapy, compared with the group of patients who did not receive metformin. (57% vs. 26%; $p<0.01$). In addition, it should be emphasized that in 90.9% of patients (40 out of 44) from group 1, it was possible to achieve the target values of fasting glycemia. This indicator significantly differed from that in the groups of patients who took a lower dose of metformin (53.1% (17 of 32)%2=10.3; $p=0.001$) and did not take metformin at all (50% (25 of 50)% 2=14.3; $p<0.001$).

Conclusions:

1. The combined appointment of basal insulin and metformin at a dose of 2000 mg / day. more effective than any hypoglycemic therapy without metformin, tk. in 79.5% of patients, it contributes to the achievement of compensation and subcompensation for type 2 diabetes.
2. The relative risk of developing mild hypoglycemia increases when metformin is combined with other hypoglycemic agents, the

most dangerous of which are sulfonylurea derivatives prescribed in maximum daily doses.
3. Combination of basal insulin with metformin at a dose of 2000 mg/day. leads to a significantly smaller increase in body weight and waist circumference in patients with type 2 diabetes than any hypoglycemic therapy without metformin.
4. Dyslipidemia in patients with type 2 diabetes in 77.6% of cases is not corrected by the combined use of metformin with basal insulin and requires the appointment of adequate lipid-lowering therapy.
5. In patients with type 2 diabetes, the daily requirement for basal insulin when combined with metformin at a dose of 2000 mg / day. 40% lower than without metformin.
6. Treatment of type 2 diabetes using metformin at a dose of 2000 mg / day. together with basal insulin is more cost-effective than any hypoglycemic therapy without metformin.

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