

# **Evaluation of insulin pump therapy effectiveness in case of 1st type diabetes mellitus**

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**Objective:** to evaluate the effectiveness of using an insulin pump (IP) in patients with type 1 diabetes mellitus (T1DM).

**Materials and methods of research:** The study was performed on the endocrinology department of the Kharkiv Regional Clinical Hospital. The study included 2 patients with T1DM who had previously been on insulin therapy. The duration of DM was 19 years in the first case and 17 years in the second one. Before the IP therapy the patients were examined by physical examination, blood and urine clinical analysis, glycemic profile, glycosylated hemoglobin level (HbA1c). The level of HbA1c level was >7.5%. Evaluation of IP therapy effectiveness was carried out three months later by assessment of the HbA1c level, the variability of glycemia according to daily monitoring of glycemia.

**Results:** During the IP use both patients had a decrease the daily dose of insulin from 55 units to 46 units in the first case and from 48 units to 42 units in the second case, that may be due to better absorption of fast-acting insulin from subcutaneous fat alternatively to long-acting insulin. It was noted that level of HbA1c was decreased from 9.2% to 7.9% in the first case and from 8.7% to 7.6% in the second one during IP therapy. According to the daily monitoring both patients had a more expressed achievement of target values of serum glucose level. It should be noted that a reduction of injections number from 4 or 5 injections every day when using a syringe pen to one change of the cannula every three days in the case of IP use is an important factor in improving the quality of life.

**Conclusions:** The effectiveness of IP therapy in form decrease level of HbA1c level as well as decrease quantity of injected insulin and number points of injections can be advantages of this method in comparison to the use of syringe pens. Longer surveillance of patients will help evaluate the long-term effectiveness of therapy, its

impact on quality of life and the progression rate of complications of diabetes mellitus.