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**ASSESSMENT OF CONTINUOUS GLUCOSE MONITORING
IN PATIENTS WITH TYPE 1 DIABETES**
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Introduction. Type 1 diabetes is a severe condition characterized by minimal or no insulin production by the pancreas. Individuals with type 1 diabetes must regulate their blood glucose levels by regularly checking their blood sugar and administering insulin through injections or an insulin pump. CGM (Continuous Glucose Monitoring) provides significant glycemic benefits for individuals with type 1 diabetes (T1DM). As these devices have become more accurate and user-friendly, their adoption has steadily increased. Compared to traditional self-monitoring with a blood glucose meter, continuous glucose monitoring (CGM) offers advantages by providing real-time insights into glucose levels. It allows users to track fluctuations and detect whether their blood sugar is rising or falling.

Aim: to evaluate the long-term effectiveness of CGM in managing glycemia in patients with type 1 diabetes.

Materials and methods. This was a cross-sectional study of continuous glucose monitoring in patients with type 1 diabetes mellitus. The sample size was 18 patients with type 1 diabetes mellitus. The study analysed one year of data from a single doctor using the CGM device at the Republic Endocrinology Centre, Minsk, Belarus. Data collection was done using the CGM device – Guardian Connect. The following parameters were analysed during the study: TIR (Time In Range) refers to the percentage of time (target over 70%) patient's blood glucose levels (from 3.9 to 10.0 mmol/l) remain within the target glycemic range and it is used to assess the effectiveness of diabetes treatment. TAR (Time Above Range) indicated the percentage of time blood glucose levels exceed the upper limit of the target range (more than 10 mmol/l and hyperglycemia). TBR (Time Below Range) represents the percentage of time the glucose levels fall below the target range and it is used to prevent hypoglycaemic episodes with dangerous complications. The target level of the coefficient of variation was taken into account as 33%.

Results and their discussion. 18 patients with type 1 diabetes mellitus (27.8%, n=5 males), (72.2%, n=13 females), mean glycemic level of patients: 8.83 (5.2-12.5) mmol/l, mean coefficient of variation: 31.97 (16.00-41.67), mean number of days: 7 (1-10) days. 94.4% (n=17) of patients were in the TIR, 83.3% (n=15) were in TAR and 33.3% (n=6) of patients were in TBR, 55.6% (n=10) were in compensation state according to the coefficient of variation during the period of study. The percentage of hypoglycaemic episodes in all patients was 16.6% (n=3).

More details about patient A. Despite maintaining a mean daily glucose level of 2.5 mmol/L, the patient demonstrated marked glycemic variability, as evidenced by a reduced Time in Range (TIR) of 40%, an elevated coefficient of variation (CV) of 50.72%, and the occurrence of four hypoglycemic episodes within the first 24 hours of observation.

Conclusion. According to the results obtained 83.3% of the patients were in TIR which confirms that CGM is effective in managing glucose level in type 1 diabetes patients. The use of CGM helps in reducing the episodes of hypoglycaemia preventing more serious complications.