

## Effect of glycemia on sleep indicators for patients with type 1 diabetes mellitus

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Study evaluates the impact of glycemia on the parameters of night's sleep for patients with decompensated type 1 diabetes mellitus (T1DM).

Materials and methods: A total of 21 cases with T1DM (HbA1c 8.5%). The monitoring of the average daily glycemia was performed through 'SGMSGold Medtronik' (USA) with estimation of average level of glucose (ALG). Patients divided into groups: group A - 10 patients with ALG  $\leq 7.75$  (6.5-8.3) mmol/l, group B - 11 patients with ALG 11.6 (8.9-16.6) mmol/l. All patients underwent polysomnographic monitoring by diagnostic complex 'SOMNOlab2'.

Results: The analysis revealed a significant correlation between ALG and SOL ( $r=0.71$ ); the duration of hyperglycemia during a day (%) and latency of REM-sleep phase ( $r=0.76$ ); negative correlation between the duration of euglycemia during the day before sleep study (%) and the latency of REM-sleep phase ( $r=-0.79$ ); between HbA1c Sleep latency and ( $r=-0.89$ ) in group A. There was no correlations between factors listed above, but a correlation between ALG and total sleep time ( $r=0.83$ ), efficiency of sleep phase1 ( $r=0.85$ ) and efficiency of sleep phase 2 ( $r=0.85$ ; all  $P<0.05$ ) in group B.

Comparative results ( $P<0.05$ ).

Indicators	Group A	Group B
ALG (mmol/l)	7.75 (6.5–8.3)	11.6 (8.9–16.6)
Duration of hyperglycemia/day (%)	16.5 (6.0–34.0)	68 (21–86)
Duration of normoglycemia/day (%)	80 (61–92)	32 (14–79)
Sleep onset latency (SOL; min)	56.5 (20–133)	14 (12–80)
Efficiency of sleep phase3 (%)	45.6 (30.5–74.8)	35.8 (15.9–50.9)

Conclusions: ALG affects on dates of the upcoming night sleep in decompensated T1DM patients. ALG  $>8.3$  mmol/l increases total sleep time, the efficiency of sleep phase 1 and 2. The increasing of ALG extends SOL, latency of REM-sleep phase. Duration of euglycemia during the day reduces latency of REM-sleep phase.