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Type 2 diabetes mellitus is associated with disruptions as a function of metabolic control

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Background and aims Sleep disturbances may be an independent risk factor for glucose intolerance and, in type 2 diabetes mellitus (T2DM), sleep disruption was shown to correlate with metabolic control. We aimed at evaluating sleep quality in non-obese T2DM patients treated with oral agents and without complications. Methods Sleep recording was performed in 25 middle-aged T2DM patients and 18 age- and sex-matched healthy controls subjects (CS) by wrist actigraphy (Actiwatch, MiniMitterCo, USA) on three consecutive working days in free living conditions. Data were analysed using ActiwareSleepSoftware. Results There were no significant differences between T2DM and CS in terms of time in bed (mean±SD 7h40′±0h53’ vs 7h36′±1h06’), actual sleep time (6h25′±0h52’ vs 6h36′±1h03’), sleep efficiency (83.77±6.92 vs 86.81±4.19%) and sleep latency (11′±11’ vs 09′±07’). However, T2DM patients showed lower (p<0.05) actual sleep percentage (88.77±4.56 vs 91.27±3.15%), higher (p<0.01) fragmentation index (21.10±8.14 vs 15.26±3.90), higher (p<0.05) total activity score during night-time (7822±3596 vs 6339±3672) and increased (p<0.01) moving time percentage (11.26±5.09 vs 7.88±1.50%). In T2DM, HbA1c correlated negatively with sleep efficiency (r=-0.624; p<0.01) and actual sleep percentage (r=-0.585; p<0.01) and positively with fragmentation index (r=0.576; p<0.01), moving time percentage (r=0.651; p<0.01) and mean activity score during night-time (r=0.493; p<0.05). Discussion These data suggest that T2DM is associated with quantitative and qualitative sleep disruption which correlate with metabolic control, even in the absence of complications.