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Chronotype of patients with different motor subtypes of Parkinson's disease

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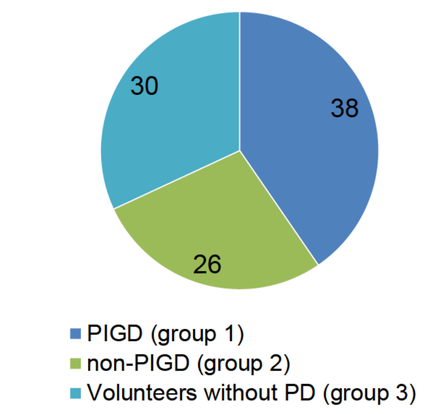
INTRODUCTION

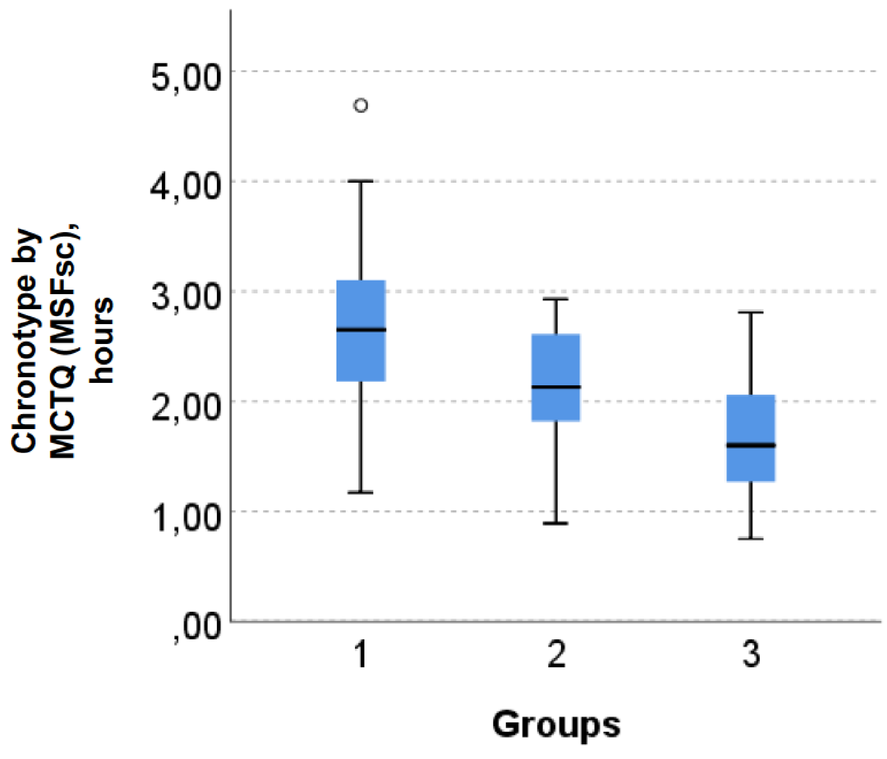
Parkinson's disease (PD) is commonly associated with disruptions to sleep and circadian rhythms[1]. Approximately 90% of PD patients have sleep disturbances as non-motor symptoms. Circadian rhythm dysregulation has been reported in PD, as well as diurnal fluctuations in other non-motor symptoms[2]. Currently, researchers are examining the potential effects of alterations in the sleep system and circadian rhythm on the symptoms and severity of the disease. The circadian system plays an important role in the regulation of metabolic processes and neurotransmitter pathways. Based on the current evidence, it has been hypothesized that molecular clock genes play a role in the pathogenesis of PD, as they are associated with mitochondrial dysfunction and disturbances in the circadian rhythm of hormone secretion observed in PD[3]. A recent study demonstrated that morning chronotypes predominate among patients with PD[2]. There was no association with disease duration and sleepiness, but the relationship with the motor subtype was not studied.

METHOD



PD diagnosis – MDS criteria[4]
Motor subtype – MDS-UPDRS[5]
Chronotype – MCTQ[6]
Statistical analysis – Kruskal-Wallis criteria with post hoc Dunn's test

We found that PD patients have mostly morning or intermediate chronotypes as well as the control group. At the same time, PD patients have shown a later onset of sleep in both subtypes ($p<0.001$ for PIGD and $p=0.006$ for non-PIGD). PIGD subtype showed a later time to get out of bed and sleep inertia compared to the non-PIGD group ($p=0.038$ and $p=0.042$ accordingly) and the control group ($p=0.011$ and $p=0.024$ accordingly). We found a longer sleep latency period in individuals with PD with both motor subtypes ($p<0.001$) compared to the control group. Sleep duration was shorter in the PIGD subtype compared to other groups ($p=0.003$ for non- PIGD and $p=0.007$ for the control group).



Statistically significant differences in chronotypes based on mid-sleep between the studied groups were revealed ($p<0.001$). Patients with PIGD had later mid-sleep compare to the non- PIGD subtype ($p=0,029$) and control group ($p<0,001$). And non- PIGD patients had later chronotype than control group ($p=0,029$).

CONCLUSION

According to the study, individuals with Parkinson's disease who have the PIGD subtype may experience a later chronotype. This delay could be due to longer sleep latency, even though they usually have a morning chronotype. The PIGD subtype was found to have a reduced sleep duration, which could contribute to the disease's severity.

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