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Actigraphy Use In A Patient With Inclusion Body Myopathy: A Case Report

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(No relationships reported)

Inclusion Body Myopathy (IBM) associated with VCP mutations is a rare genetic disorder characterized by progressive muscle weakness, reduced physical activity (PA), pain, and abnormal sleep.
PURPOSE: To monitor PA and sleep pattern in a wheelChair: bound patient with IBM over 15 months. We hypothesized that PA would progressively decrease and sleep would become less efficient.
METHODS: An Actigraph worn on the wrist was used to collect 24h motion data. A daily activity log was completed. Data was collected for a total of 268 days, and was grouped into 11 blocks. For daytime, data from 11am to 7pm was used, and PA was set at a threshold of 100 in vector magnitude. One way ANOVA was applied to detect PA differences among the 11 blocks. Linear regression was used to detect significant changes in daily PA over time. Sleep patterns were analyzed using Actilife built-in Sleep Analyses with Sadeh algorithm.
RESULTS: Actigraph data corresponded well to activity log report. The patient reported progressive decline in hand strength (confirmed with dynamometry) during the study and had to adjust movement to compensate and complete tasks of daily life. Despite a 30% decline in hand grip force (P<.05), there was no significant change in Actigraph daily PA over the 15 months, as demonstrated by a flat regression line. Average daily PA, grouped in 11 blocks showed lower activity in two blocks (P<.05) which corresponded to extended travel and performing less routine activity. Sleep efficiency ranged from 75 to 82% in the first 10 blocks and was significantly below normal (p<.01). However, it was normalized during the last block. Interestingly, the patient associated the improved sleep with using melatonin & acetaminophen.
CONCLUSION: There can be a significant decline in muscle strength that remains undetected with wrist actigraphy. The patient compensated for progressive weakness by finding alternate muscle use paradigms to complete specific tasks. Improved methods to characterize daily PA in people with neuromuscular disease might prove useful in identifying how patients compensate for progressive weakness. Currently wrist actigraphy and activity log are both needed for this evaluation. Finally, wrist actigraphy can be effectively used to monitor sleep pattern.