



Association between habitual physical activity (HPA) and sleep quality in patients with cystic fibrosis

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Background: Sleep disturbances and poor sleep quality are a known phenomenon in patients with Cystic Fibrosis (CF). Habitual physical activity (HPA) plays an important role in the treatment of CF patients due to its positive influence on progression of disease and quality of life. The aim of this work is to create a home-based sleep and activity profile and to investigate the influence of habitual physical activity (HPA) on sleep quality of children, adolescents and adults with CF.

Methods: One hundred and nine CF patients (64 male, mean age 22.7±12.0 years; mean ppFEV1 63.0±26.7) were equipped with an actigraph (Actigraph Corp., Pensacola, FL, United States) for home-based collection of activity and sleep data for a total of 4 weeks. Evaluation of recorded raw data was performed by ActiLife software, Version 6.11.9 (Actigraph Corp., Pensacola, FL, United States).

Results: CF patients under the age of 18 show the best sleep efficiency (92%±3%), the longest time in bed (TIB) (545±71 min) and Total Sleep Time (504±72 min) and the lowest Wake after sleep Onset (WASO) (39±15 min). With increasing age there is a decrease in Sleep efficiency (SE) (P<0.01), TST (P<0.01) and TIB (P<0.01) and an increase in WASO (P>0.05). In terms of lung function, CF patients with FEV1 values > 70%pred. have the best SE (92%±3%),

the highest TST (490±72 min) and TIB (531±71 min) and the lowest WASO (39±13 min). As FEV1 deteriorates, a change in sleeping behavior can be detected. SE (P<0.05), TST (P<0.05) and TIB (P>0.05) decrease, whereas WASO (P>0.05) increases. Interestingly, there is no difference in the number of awakenings between the different age and FEV1 groups (all P>0.05). Statistical analysis was performed using version 25 of the SPSS statistics package (SPSS Inc., Chicago, USA).

Conclusions: Besides younger age and higher FEV1, daily activity in higher intensities influences sleep of CF patients in a positive way. Patients with poor quality and disturbances of sleep possibly benefit from an intensification of physical activity in the home environment.

Keywords: Rehabilitation; quality of life; actigraphy; pulmonary function test

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Footnote

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