Sleep Apnoea

Rationale and design of remotely-supervised cardiac rehabilitation study in patients with obstructive sleep apnea

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Background: Although continuous positive airway pressure (CPAP) is currently still the gold standard for therapy of moderate to severe obstructive sleep apnea (OSA), another alternative or adjunct effective therapeutic options exist. Lifestyle intervention focused on nutrition and weight reduction, regular exercise, sleep hygiene, smoking and alcohol restriction represents a recommended therapeutic strategy for OSA. Though this intervention represents an effective tool for improving objective and subjective parameters of OSA, it's effectivity depends on components of the intervention, OSA severity and gender. Comprehensive remotely-supervised cardiac rehabilitation (CR) represents possible training intervention in home conditions using elements of telemedicine.

Purpose: This prospective study aims to investigate the feasibility and effect of a remotely-supervised CR in patients with newly diagnosed OSA with Apnea-Hypopnea Index greater than 15 episodes per hour.

Methods: This monocentric study is designed as a prospective, parallel, randomised, controlled trial of remotely-supervised 12-week CR in male patients between 40-60 years old with newly diagnosed OSA indicated to CPAP therapy. The sample size is calculated by 0,05 level of significance and 80% statistical power on 25 participants in each group. The Intervention group will undergo comprehensive remotely-supervised CR in home conditions with teleconsultation (contains telecoaching, telemonitoring) via regular phone calls and e-mails at least 1-2 times a week. The intervention will include nutrition, health-related lifestyle and behavioral changes recommendations, and at least 5 times a week 30 minutes of moderate-intensity aerobic training, 10 minutes of inspiratory and expiratory muscle training with breathing device and 10 minutes of oropharyngeal exercise along with individually titrated CPAP therapy. The control group will undergo individually titrated CPAP therapy only. The participants in both groups will go through the following assessments before and after this study: polysomnography, spirometry, anthropometry and body composition examination, laboratory values examination, quality of life questionnaires, Epworth sleepiness scale, 6-min walking test. Conclusions: Comprehensive remotely-supervised CR, as mentioned in this study, may represent an adjunct therapy with a promising future in patients with OSA. The study is occupied with a current issue and can also bring new possibilities and experiences in remote rehabilitation.