Effects of digital Adapted Physical Activity intervention on physical activity levels and sleep quality in patients with spondyloarthritis. Protocol for the ASPIRE randomised, multicentre, controlled trial

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Résumé

Introduction

Spondyloarthritis (SpA) is a chronic inflammatory rheumatic disease that primarily affects the spine and joints, leading to pain, stiffness, fatigue, reduced physical function and altered sleep quality (Sieper & Poddubnyy, 2017). Physical activity (PA) is recommended by the European Alliance of Associations for Rheumatology (EULAR) as a core component of the management of SpA to improve physical function, reduce symptoms, and enhance overall quality of life. Despite these recommendations, PA levels remain low among individuals with SpA, due to barriers such as pain, fatigue, poor sleep quality, and lack of tailored support. Current literature suggests that digital platforms for rehabilitation and PA promotion are as effective as in-person programs (Cottrell et al., 2017), while offering increased accessibility and reduced costs. One of the major challenges in promoting PA in patients with SpA is to focus on maintaining the effects of interventions, while providing intervention descriptions to enhance their transferability and reproducibility. To optimize PA adherence, it is essential to integrate validated behavior change techniques (BCTs) targeting both the initiation and long-term maintenance of PA into Adapted Physical Activity (APA) programs (Chaplin et al., 2023). In addition, the potential impact of PA interventions on sleep improvement remains underexplored. Thus, there is a real to develop strategies that aim both to promote PA and to improve sleep quality.

The objective of this study is to evaluate the impact of a tailored 6-month digital APA program on physical activity levels (measured by the average daily step count using GT3X Actigraph monitor) and sleep quality (assessed using the Pittsburgh Sleep Quality Index) in patients with SpA.

*Intervenant

Methods

The ASPIRE study is a prospective, multicenter, randomized, controlled, open-label trial. One hundred adults with a confirmed diagnosis of SpA will be recruited across four teaching hospitals in France. Participants will be randomly assigned to either a control group, receiving general PA recommendations, or a digital APA intervention group. The intervention: an individualized digital APA program will be delivered via the Axomove Therapy® platform and participants will be guided by an APA teacher to meet the WHO recommendations (i.e. 150 minutes of moderate intensity aerobic PA per week and muscle-strengthening activities that involve all major muscle groups twice weekly). Participants will benefit from 10 visits with the APA teacher: initial assessment to define personalized goals and familiarize participants with the digital platform, eight sessions to monitor progress and adapt exercise plan, and a final evaluation aimed at assessing outcomes and encouraging long-term adherence to physical activity. Daily physical activity will be monitored using a Withings connected watch to track metrics such as step count. Outcomes will include anthropometric measurements, disease activity, exercise testing, and patient-reported outcomes regarding pain, fatigue, quality of life, motivation, self-esteem. These parameters will be assessed at baseline, 6 months (primary outcome), and 12 months after the start of the study. For patients in the intervention group, the feasibility and acceptability of the intervention will be evaluated at 6 months. The study has received ethical approval and is registered in a clinical trial registry.

Discussion

The ASPIRE study is designed to address key gaps in the promotion of PA among patients with SpA by offering a personalized, accessible, and structured digital intervention. By combining validated BCTs with remote APA support, this study aims not only to enhance PA levels but also to explore potential benefits on sleep quality, a frequently neglected but impactful symptom in this population. The use of objective measurements and a detailed intervention protocol will contribute to the rigor and reproducibility of the findings. If effective, this digital approach could provide a sustainable model for improving long-term health outcomes in individuals with SpA.

Références

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