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Development and Evaluation of a Low-Cost Individual Rhythmic Auditory Cueing Device for Managing Gait and Freezing in Parkinson's Disease: A Trial Protocol

Topic: Assistive Products

Sana Salah[1], Amr Chaabani[2], Maha Ammar[2], Anis Jellad[3], Zohra Ben Salah Frih[2], Mohamed Hedi Bedoui[4]

[1]*Physical Medicine and Rehabilitation, Fattouma Bouguiba University Hospital, LabTIM Research Laboratory LR12ES06, Faculty of Medicine, University of Monastir, Monastir, Tunisia*
[2]*Physical Medicine and Rehabilitation, Fattouma Bouguiba University Hospital, Monastir, Tunisia*
[3]*Physical Medicine and Rehabilitation, Fattouma Bouguiba University Hospital, LabTIM Research Laboratory LR12ES06, Faculty of Medicine, University of Monastir, Monastir, Tunisia*
[4]*LabTIM Research Laboratory LR12ES06, Faculty of Medicine, University of Monastir, Monastir, Tunisia*

BACKGROUND

Cueing, involving external temporal or spatial stimuli, has shown promise in Parkinson's disease (PD) management. This study aims to develop and evaluate the efficacy of a low-cost individual rhythmic auditory cueing (RAC) device using a smartphone app-controlled metronome for managing gait and freezing in people with PD.

METHODS

A prospective trial with thirty PD patients will be conducted following ethics committee approval and registration on clinicalTrial.gov. Participants will use a smartphone app providing an individualized auditory metronome beat synchronized with their walking frequency. Twelve supervised rehabilitation sessions will be followed by twelve self-home exercises (3 sessions/week). Evaluation parameters include the Freezing of Gait Questionnaire, Get-up and Go test, 10-meter walk test, and gait analysis using the Locometer Satel© at baseline, four and eight weeks, and three months follow-up.

RESULTS

The developed app serves as a cost-effective and innovative tool, expected to yield immediate improvements in gait speed, stride length, and freezing after both supervised and self-home rehabilitation.

The anticipated therapeutic effects are expected to persist for three months, given the probable integration of the app use into participants' daily routines.

Furthermore, the app is developed to provide an objective monitoring of patients' adherence through reporting, enhancing the overall effectiveness of the intervention.

CONCLUSION

This innovative approach enhances mobility and independence by seamlessly integrating into both clinical and social environments. With minimal disruption to daily life, it maximizes therapeutic benefits while promoting autonomy. The convenience of a user-friendly, adaptable tool empowers individuals to manage symptoms effectively, fostering confidence and improving overall quality of life.

Statement of Disclosures

None

Corresponding Author:
Sana Salah
Physical Medicine and Rehabilitation, Fattouma Bouguiba University Hospital, LabTIM Research Laboratory LR12ES06, Faculty of Medicine, University of Monastir, Monastir, Tunisia
Email: sanasalahdoc@gmail.com

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