

HOME-BASED REMOTE MOTOR REHABILITATION PROGRAM

Quality of Life Changes in Adolescents Affected with Leukemia

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BACKGROUND

Pediatric tumors are rare but are an important cause of morbidity and mortality for the young people involved. The most common forms include leukemias (ALL)¹. The treatment for ALL lasts about two years and usually consists of induction, consolidation and maintenance therapy¹. Their side effects may prolong for months after the end of treatment. The most common ones during the medical treatment are weakness, motor and sensory disorders, balance problems, reduced cardiorespiratory fitness, fatigue, anxiety, reduced motor and physical performance, social isolation all causing deterioration in quality of life¹.

Studies highlight the need for further research on the effects of physical activity in adolescents with cancer, using populations consistent by age and disease, as well as well-defined training protocols⁴.

OBJECTIVES

To identify changes in global quality of life in adolescents affected by ALL after a personalized 8-week remote motor rehabilitation program.

MATERIALS

This non-profit pilot study, carried out in Florence as a Master in Pediatric Physiotherapy thesis, enrolled adolescents (11-18yo), affected with ALL in the maintenance or off medical therapy phase.

The remote motor rehabilitation program was carried out with the software Physiotools Trainer and evaluated with the questionnaire PedsQL 4.0. Post rehab program evaluations included: 1) changes in gross motor skills evaluated with the FAAP-O scale; 2) reduction of fatigue evaluated with the PedsQL MFS questionnaire; 3) changes in muscular, pulmonary and stroke work during exercise evaluated with a Shuttle test modified.

An evaluation was made before the physical training (T0) and then after 8 weeks (T8). The 8-week training was composed of both aerobics/anaerobics and muscle-strengthening appropriate for every adolescent⁴.

RESULTS

Nine adolescents enrolled in the study, and six have completed the 8-week program (one is currently completing it). All these six showed stable or improved fatigue (PedsQL MFS); four remained stable or improved for the PedsQL 4.0., while two showed a slight decline in quality of life.

Modified Shuttle Test performance improved in all six youths with increases ranging from +3% to +42%. No significant changes were observed in FAAP-O scores.

CONCLUSIONS

Preliminary results of this study in completion by April 2026 suggest improved quality of life in the majority of youths, reduced fatigue, and increased exercise tolerance. Minor declines in PedsQL 4.0

scores may reflect higher engagement in daily activities rather than reduced wellbeing. The program seems a successful proposal for young people affected with the leucemia form of cancer.

Keywords: *rehabilitation, leukemia, adolescents telerehabilitation, quality of life.*

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