Mobility in patients with lower limb amputation after prosthesis

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Background

Amputation is still often viewed as a failure of treatment (1). Resulting vascular complications and diabetes are growing health issues in developing countries (2) Amputation leads to a permanent disability and brings a dramatic change in theses individuals' life and function, particularly experienced by lower limb amputees (3). Post amputation, much of the rehabilitation focus is on maximizing functional mobility disturbances, body image disturbances and quality of life (4) Patients with amputations often show gait deviations such as reduced walking velocity and atypical loading characteristics (5).

Purpose

The purpose of this study was to assess post-prosthesis mobility training impact in persons with lower limb amputation.

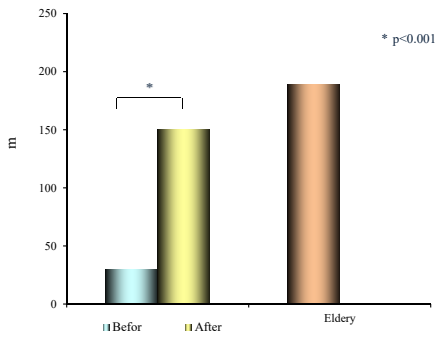
Methods

Twenty-five patients with lower limb amputation, 21 male (69.8±16.2 yrs) and 4 female (67.5±8.8 yrs), with time since amputation of 12.7±6.4 months, were submitted to physiotherapy intervention, based on balance and walk exercise with prosthesis for sixteen sessions, twice a week. Two min walk distance test (2MWD), were performed before and after intervention. Amputee Mobility Predictor (AMP), which is a 20-item assessment tool designed to evaluate the skills required for successful prosthetic ambulation, was applied to assess components of gait: step length, transverse obstacle, and ascend and descend stairs. Health related quality of life (HRQL) was measured by SF-36 questionnaire. The study was performed at Physical Medicine and Rehabilitation department of Garcia de Orta Hospital, ant it was approved by the institutional Ethics Committee. All participants gave their informed consent.

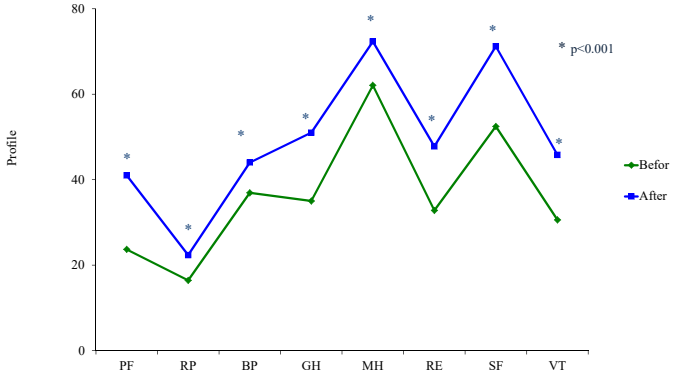
Results

At the end of 16 physiotherapy sessions, significant differences ($p < 0.001$) were seen in 2 minute walk test distance (from 30±9.6 up to 150±20.3 m) (Graph 1), at AMP from 12.5±5.1 up to 37.2±8.9 in the ability to walk with the prosthesis. These results were accomplished by a significant improvement in all domains of the SF-36 ($p < 0.001$) (Graph 2).

Graph 1: 2MWD



Graph 2: Medical Outcomes Study SF-36



Conclusions

This study, at the end of intervention, demonstrated that these patients had an increase at gait performance, with a decrease in gait deviations such, altered step lengths asymmetries, in stance and swing times, with an increase at walking velocity, associated with significant increase in perception at HRQL, which strongly influences patient's personal independence. However they walk less distance and at lower velocity than healthy subjects (6).

References

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