Quantifying prosthetic utilisation and functional mobility in new prosthetic users, and exploring their barriers following inpatient rehabilitation

Shea Teevan[1,2], Heather Batten[1], Salih Salih[1,3], Paul Varghese[1,3] and Suzanne Kuys[2]

[1]Princess Alexandra Hospital, [2]Australian Catholic University and [3]The University of Queensland

Background

Prosthetic utilisation is an important rehabilitation goal after major lower limb amputation and is important in maximising functional mobility. Skin injuries to the residual limb, residual and phantom limb pain, and fatigue are common barriers to prosthetic utilisation in new prosthetic users and are monitored as part of their inpatient rehabilitation program. Following discharge, it is unclear how prosthetic utilisation and functional mobility outcomes change, as well as the impact of common barriers to prosthetic utilisation.

Aim

This study aims to measure prosthetic utilisation, functional mobility, and barriers to prosthetic utilisation prior to and two-weeks post-discharge from inpatient rehabilitation, and to investigate the relationship of these barriers to prosthetic utilisation.

Methods

Design: Prospective longitudinal cohort study
Setting: inpatient rehabilitation; PAH, 2020-2022
Participants: 11 people with a new, unilateral, major lower limb amputation
Primary outcome: Mean daily standing/walking time (ActivPAL)
Secondary outcomes:

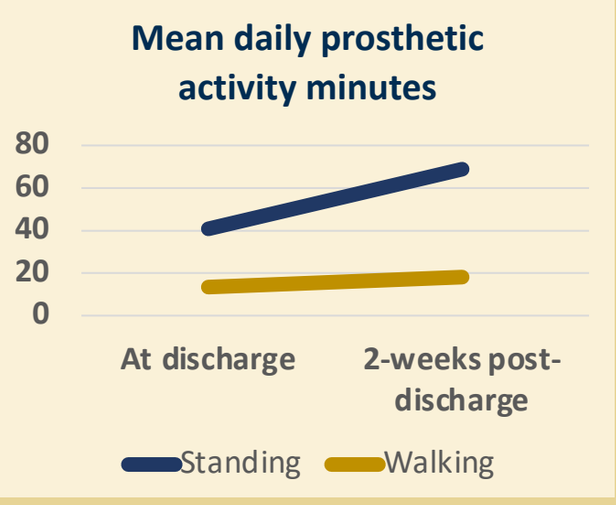
- Functional mobility = 6-minute-walk test, Timed 10m walk test, , Timed Up and Go test, AMPRO
- Barriers to prosthetic utilisation = ordinal and numerical scales for skin integrity, TAPES, SF-36

Analysis: Paired-Samples T test, Pearson correlations test

Participant Characteristics	n=11
Gender: males	9 (82%)
Level of amputation: transtibial transfemoral	9 (82%) 2 (18%)
Aetiology: dysvascular trauma	10 (91%) 1 (9%)
Age: mean (SD) years	60.73 (11.917)
BMI: mean	29.131 (3.534)
Number of co-morbidities: 0-1 2-5 >6	1 (9%) 4 (36%) 6 (54%)

Results

- Functional mobility improved two-weeks post-discharge.
- Skin issues, residual and phantom limb pain, and fatigue increased two-weeks post-discharge from inpatient rehabilitation ($p<0.001$). There was no significant relationship between barriers and prosthetic utilisation ($r<0.580$, $p>0.062$).



Conclusion

- Prosthetic utilisation increased two-weeks post-discharge from inpatient rehabilitation.
- Functional mobility also improved.
- Skin issues, residual and phantom limb pain, and fatigue increased two-weeks post-discharge, but did not significantly impact prosthetic utilisation.

For further information, please contact Shea Teevan
Email: shea.teevan@health.qld.gov.au