Models of care are associated with time taken to achieve key rehabilitation milestones in patients undergoing unilateral transtibial amputation

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Introduction

The Scottish Physiotherapy Amputee Research Group (SPARG) collects national data on all major lower limb amputations and had identified a wide variation in the models of care within Scotland. SPARG data indicated that the proportion of patients using the PPAM aid within ten days (recognised best practice) was decreasing. It was hypothesised that models of care may affect rehabilitation timings and outcomes.

Aim

• Identify the different models of care post-amputation in Scotland
• Explore how these models of care relate to the achievement of rehabilitation milestones and prosthetic fitting outcomes.
• To determine if this service is delivered equitably across Scotland and what affect this has on the patient journey.

Method

Phase 1

Semi structured interviews with each of the lead physiotherapists in the 10 major centres in Scotland and 5 patient focus groups took place. Following thematic analysis a model of care descriptor with scoring system was developed.

Phase 2

Retrospective data analysis of SPARG data for all unilateral transtibial amputations, aetiology of peripheral arterial disease and/or diabetes, between 01/01/11 and 31/12/12, ≥ 18 years.

Key rehabilitation milestones

(days from amputation)
- Compression Therapy
- PPAM aid use
- Cast for prosthetic limb
- Inpatient discharge
- Final discharge

Locomotor Capabilities Index LCI-5

(self reported community mobility)
- Change Score between 6months pre-amputation and final discharge.

Gross outcome

- Limb fitted
- Non limbfitted

Results

An extensive variation in models of care post - amputation in Scotland was identified. Despite having comparable populations, there was found to be significant differences between the centres in the time to achieve rehabilitation milestones.

Seven key aspects of service provision were identified and a model of care descriptor score was calculated for each centre by scoring the seven identified areas of service.

1. Specialist physiotherapy input in the first 14 days
2. Immediate post - operative rigid dressing
3. Frequency of inpatient gym sessions
4. Length of inpatient gym session
5. Prosthetic provision as an in-patient
6. Prosthetic centre at in-patient site
7. Specialist physiotherapy post-outpatient service

Figures 1 shows the variation in days from amputation to commencing compression therapy, PPAM aid use and casting for prosthetic limb.

Figures 2 shows both days to inpatient and final discharge (discharge from physiotherapy). There appears to be an association between inpatient prosthetic rehabilitation and shorter days to final discharge.

Figure 3 shows the variation in days to compression, EWA and final discharge for each of the 10 centres. Values represent deviation from overall median.

Centres which were found to have significantly shorter median days, to achieve each of the five milestones, were awarded a point and a milestone achievement score was created. Figure 5 shows centres with a higher milestone achievement score also scored highest in the model of care descriptor score.

Conclusion

A unique model of care was found in each of the 10 centres, however some centres achieve rehabilitation milestones sooner than others.

This patient group has a high mortality rate and multiple co-morbidities so timing is very important.

Follow up 6 months after final discharge has been planned in 3 of the larger centres to look at longer term mobility and outcomes.

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