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Outcomes after a transtibial amputation, a comparison between patients receiving the prosthesis early or late – a Swedish registry study

Maria Glemne, PhD-student, Sahlgrenska Academy, University of Gothenburg, Sweden

CPO, Södra Älvsborgs Hospital, Borås, Sweden

Supervisors/Co-authors - Roy Tranberg, Peter Thomsen, Kerstin Hagberg, Louise Bæk Larsen

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Ethical approval from Swedish Ethical Review Authority

The authors declare no conflict of interest

Introduction

- Early prosthetic provision has been suggested to create better conditions for good mobility with a prosthesis
- SwedeAmp - number of days from amputation to first prosthesis after TTA is around two months, with large variation
- Are patients receiving a prosthesis earlier comparable to patients receiving a prosthesis later?

Credit: kojilive, Istock

Refs: K. Sansam K. et al, J Rehabil Med. (2009), www.rcsyd.se/swedeamp

Aim

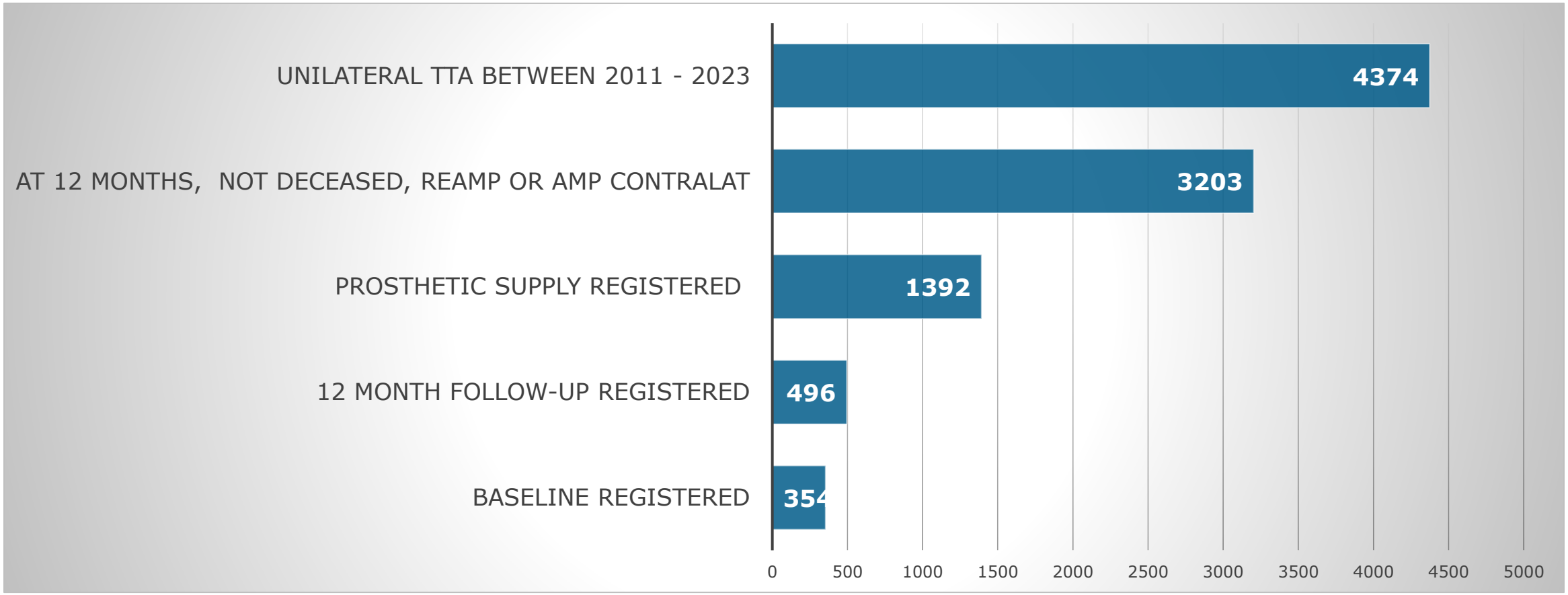
The aim of this study was to explore potential differences in groups of patients with a unilateral TTA who receive their first prosthesis early or late, using SwedeAmp data.

Method – Inclusion criteria

- ✓ Unilateral TTA 2011 - 2023
- ✓ ≥18 years old at amputation
- ✓ Provided with a prosthesis within 12 months
- ✓ Had been registered at Baseline and at 12 months follow-up
- ✓ Not deceased, re-amputated or amputated contralaterally within 12 months

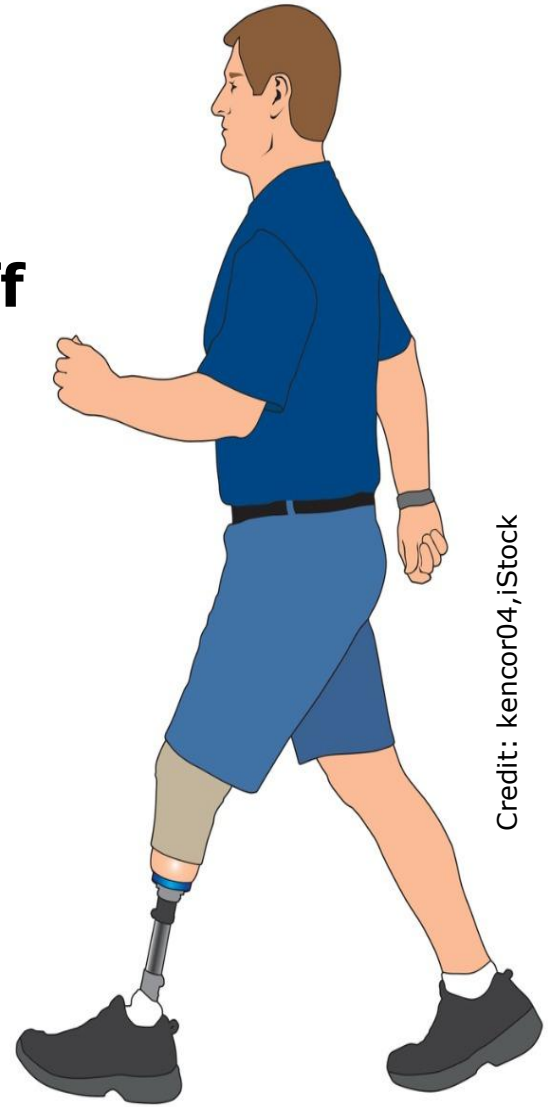
Credit: Jintana Kutchuchittarom, iStock

Method


UNILATERAL TTA BETWEEN 2011 - 2023
4374
AT 12 MONTHS, NOT DECEASED, REAMP OR AMP CONTRALAT
3203
PROSTHETIC SUPPLY REGISTERED
1392
12 MONTH FOLLOW-UP REGISTERED
496
BASELINE REGISTERED
354
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000

Method

- n=354 meet the inclusion criteria
- **The median number of days (64) was used as cut-off for early or late prosthetic fitting**
- Descriptive statistics were used to explore the two groups
- Analyses of differences between groups (p-value<0.05)
  - Independent two-sample t-test used for parametric data
  - Chi-square test used for non-parametric data



Credit: kencor04,iStock

Method – comparison of groups

- **Demographic variables**
  - Sex, Age, Amputation cause, Co-morbidity
- **Baseline variable**
  - Locomotor Capability Index Pre (LCI-5 Pre), (0-56)
- **Surgical variables**
  - Surgical flap technique
- **Prosthesis-related variable**
  - Socket process method
  - Suspension
- **Outcomes 12 months follow-up**
  - LCI-5, (0-56)
  - Prosthetic Use Score (PUS), (0-100)
  - Timed Up & Go (TUG), sec

Results

	Total *n=354*	**Early group** *n=173*	**Late group** *n=181*	**P-value**
Age mean (sd)	71.9 (23.7)	71.6 (11.9)	72.1 (13.5)	0.726
Sex n (%)				
- Male	233 (66)	117 (68)	116 (64)	0.503
- Female	121 (34)	56 (32)	65 (36)	
Amputation cause n (%)				
- Diabetes with or without vascular disease	200 (56)	94 (54)	106 (59)	0.53
- Vascular disease without diabetes	102 (29)	50 (29)	52 (29)	
- Other	52 (15)	29 (17)	23 (12)	
Co-morbidity n (%)	*n=242*	*n=129*	*n=113*	
- None	17 (7)	11 (8,5)	6 (5)	0.395
- One condition	104 (43)	51 (39,5)	53 (47)	
- Two or more conditions	121 (50)	67 (52)	54 (48)	
Surgical technique n (%)	*n=210*	*n=134*	*n=76*	
- Sagital/Scew flap	170 (81)	116 (87)	54 (71)	**0.01**
- Anterior-Posterior/Long posterior flap	40	18 (13)	22 (29)	

Results

	Total	Early group	Late group	P-value
Time to prosthesis median (range)	*n=354*	*n=173*	*n=181*	
	64 (16 - 324)	**38** (16 - 63)	**95** (64 - 324)	
Socket process method n (%)	*n=110*	*n=64*	*n=46*	
- Directly laminated socket	87 (79)	60 (94)	27 (59)	**<0.001**
- Hand casting	23 (21)	4 (6)	19 (41)	
Suspension method n (%)	*n=337*	*n=162*	*n=175*	
- Distal connection (pin/lanyard/distal vacuum)	107 (32)	21 (13)	86 (49)	**< 0.001**
- Vacuum passiv	230 68)	141 (87)	89 (51)	
LCI-5 baseline median (range)	*n=349*	*n=169*	*n=180*	
-Total (0-56)	44 (0 - 56)	45 (0 - 56)	43 (3 - 56)	0.332
LCI-5 12 month median (range)	*n=328*	*n=161*	*n=167*	
-Total (0-56)	36 (0 - 56)	40 (1 - 56)	32 (0 - 56)	**0.002**
Prosthetic Use Score (0-100) mean (sd)	*n=354*	*n=171*	*n=179*	
	48.3 (32.6)	55.8 (32.8)	41.3 (30.9)	**<0.001**
Timed Up & Go (sec) mean (sd)	*n=170*	*n=104*	*n=66*	
	26.3 (25.9)	24.2 (27.6)	29.4 (22.7)	0.204

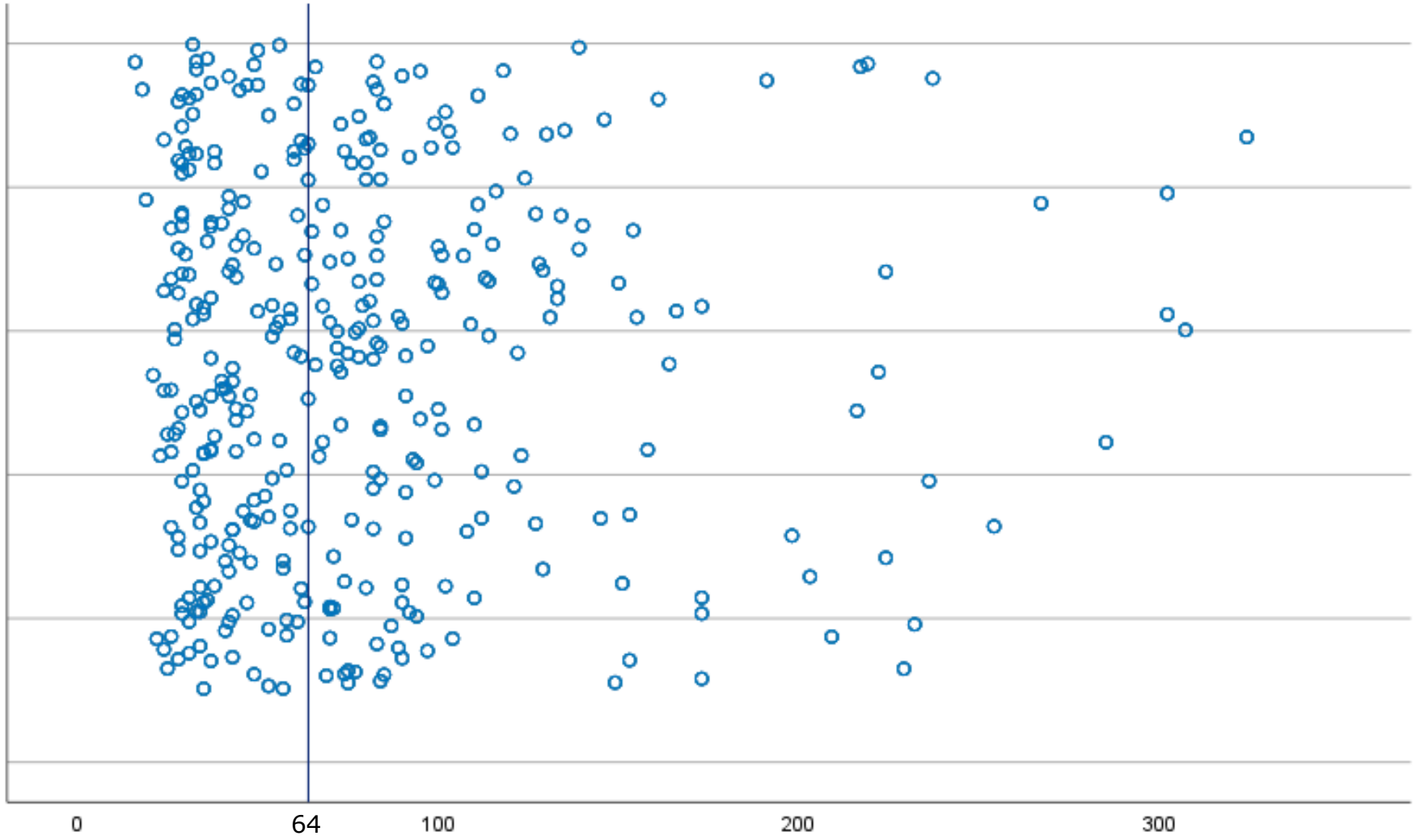
Conclusion

- Basic demographic and baseline variables were similar between patients receiving the prosthesis early or late
- In the early group, a higher proportion had
  - sagittal/skew flaps
  - a directly laminated socket
  - vacuum suspension
- At 12 months follow-up patients in the early group reported better prosthetic mobility and more prosthesis use

Discussion

- Difficult to compare results due to:
  - No established international definition of time to prosthetic fitting
  - Variation in care settings around the world
- Registry data:
  - offers the opportunity to get more data than possible at a single clinic but
  - may contain missings and errors

Discussion – cut off



Coming next…

Analyse the registry data using three groups:

Early, mid & late group

More detailed analyses such as:

Prosthetic and follow-up related variables

Analyses of relations between variables


Thank you all for listening!
maria.glemne@vgregion.se
Rönnäng, on the West Coast of Sweden