Chronic Low Back Pain in Individuals with Lower-limb Amputation

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Abstract

Low back pain (LBP) is a common condition in individuals which experienced psychology and physical trauma. LBP is usually found in persons with lower-limb amputation (LLA), as the most common sign of somatisation or inappropriately made prostheses. Our goal was to investigate cases of chronic pain syndrome in persons with LLA and to determine factors, which influence their functional inability due to LBP. Pain after LLA has been studied. 37 persons, including 26 war veterans (70,2 %) and 11 (29,8 %) civilians with LLA due to an illness, were examined. All participants gave their informed consent and filled Oswestry index of disability due to chronic LBP, divided into 10 sections with 6 questions each, with marks in the range 0-5. The average age of 37 analyzed participants with LLA was 46,2+-10,92 years. 30 participants (81,1 %) were married, 4 (10,8 %) were single and 3 (8,1 %) were widows. 27 (73,0 %) participants had below the knee amputation, 5 (13,5 %) had above the knee amputation and 5 (13,5 %) had foot amputation. 33 (89,6 %) participants experienced chronic LBP in the last 2-10 years and 4 (10,8 %) did not have pains. According to Oswestry index for chronic pain higher level of social functionality was found in civilian amputees than in war veterans ($p<0,05$). Married civilian amputees have higher level of disability during seating ($p<0,01$), sleeping ($p<0,01$) and traveling ($p<0,05$). Higher level of social disorder among civilian amputees is due to the fact that they belong to older group of participants which usually have social integration at the lower degree. More serious problems during seating, traveling and sleeping among this group are probably due to co morbidity. Chronic LBP was found among 89,6 % of the participants. Higher level of social disorder, problems during seating, traveling and sleeping were identified in the civilian amputees and the married participants.

KEY WORDS: Oswestry index, amputation, chronic low-back pain.

Introduction

Low back pain (LBP) is a common condition in individuals which experienced psychological and physical trauma. LBP is usually found in persons with lower-limb amputation (LLA), as the most common sign of somatisation or inappropriately made prostheses, inadequately formed stamp, incorrect walking with prosthesis and a lack of post-amputation walking school procedures. LBP in persons with LLA is a serious problem as well as a phantom pain and is more emphasized than with degenerative ethiology(1). LBP is found in 50-90 % cases in general population during their life time(2,3). Smith(4) and Ehde(5) during one month study found LBP in 71 % cases of amputees with LLA. Most common used scale of disability of persons with chronic LBP is Roland-Morris-Disability and Oswestry Low Back Pain Questionnaire (OSW)(6). Original OSW(7) was proposed in 1980 and Hudson-Cooc and associates(8) simplified this index in 1989 substituting section related to sexual life with intensity of pain part. Objective of this pilot research was to investigate chronic pain syndrome in persons with lower-limb amputation (LLA) in order to determine factors, which influence functional disability due to LBP.

Method and Subjects

Sample consists of 37 participants with LLA, among which 26 (70,2 %) were war veterans and 11 (29,8 %) civilians with LLA due to an illness. All participants gave their informed consent and filled revised Oswestry Disability Low Back Pain Questionnaire consisting of 10 sections (section 1 - pain intensity, section 2 - personal care, section 3 - weight lifting, section 4 - walking, section 5 -seating, section 6 - standing, section 7 - sleeping, section 8 - social life, section 9 - traveling, section 10 - scale of pain intensity), each with 6 questions and marks in the range 0-5. Total score is in the range 0-50 where score 0 indicates the best level of functionality and score 50 the worse functionality. Multiplying the total score by two forms the percent indicator of disability:

- 0 % to 20 % - minimally disabled
- 21 % to 40 % - medium disabled
- 41 % to 60 % - seriously disabled
- 61 % to 80 % - badly disabled
- 81 % to 100 %- extremely disabled (totally immobile)

Results and Discussion

The average age of 37 analyzed participants with LLA was 46,2 ± 10,92 years. Majority of the participants (26 or 70,2 %) had traumatic war amputation and 11 (29,8 %) participants were civilians with LLA due to an illness. Majority were married (see Table 1). Distribution according to degree of education (see Table 2) shows that majority of the participants have high school degree. According to the level of amputation (see Table 3) majority of the participants have below the knee amputation. Distribution according to employment status (see Table 4) shows that majority of the participants

MARRIAGE STATUS		GROUPS		
		Veterans	Civilians	Total
Married	Count	25	5	30
	% within groups	96.20 %	45.50 %	81.10 %
Single	Count	1	3	4
	% within groups	3.80 %	27.30 %	10.80 %
Widow	Count		3	3
	% within groups		27.30 %	8.10 %
Total	Count	26	11	37
	% within groups	100.00 %	100.00 %	100.00 %

Table 1. Distribution according to marriage status

DEGREE OF EDUCATION		GROUPS		
		Veterans	Civilians	Total
High school	Count	18	9	27
	% within groups	69.20 %	81.80 %	73.00 %
Primary school	Count	6	1	7
	% within groups	23.10 %	9.10 %	18.90 %
University	Count	2	1	3
	% within groups	7.70 %	9.10 %	8.10 %
Total	Count	26	11	37
	% within groups	100.00 %	100.00 %	100.00 %

Table 2. Distribution according to degree of education

LEVEL OF AMPUTATION		GROUPS		
		Veterans	Civilians	Total
Below knee	Count	20	7	27
	% within groups	76.90 %	63.60 %	73.00 %
Above knee	Count	1	4	5
	% within groups	3.80 %	36.40 %	13.50 %
Foot	Count	5		5
	% within groups	19.20 %		13.50 %
Total	Count	26	11	37
	% within groups	100.00 %	100.00 %	100.00 %

Table 3. Distribution according to the level of amputation

EMPLOYMENT STATUS	GROUPS		
	Veterans	Civilians	Total
Employed	9 (81,8 %)	2 (18,2 %)	11 (29,7 %)
Unemployed	15 (57,7 %)	9 (81,8 %)	24 (64,9 %)
On leave	2 (7,7 %)		2 (5,4 %)
Total	26 (70,3 %)	11 (29,7 %)	37 (100,0 %)

Table 4. Distribution according to employment status

Rank

GROUPS		N	Mean Rank
SOCFUNKC	Veterans	26	16.50
	Civilians	11	24.91
	Total	37	

Test Statistics

	SOCFUNKC
Chi – Square	5.144
Of	1
Asymp Sig	0.023

a) Kruskal Wallis Test
b) Grouping Variable Group

Table 5. Distribution according to level of social integration

Symmetric Measures

GROUPS		Married	Single	Widow Widower	Total
Veterans sitting					
good level	0,00	12	0	0	12
minimal level	1,00	1	0	0	1
moderate level	2,00	9	1	0	10
severe level	3,00	3	0	0	3
Total		25	1	0	26
Civilians sitting					
good level	0,00	2	1	0	3
minimal level	1,00	2	0	0	2
moderate level	2,00	1	2	1	4
severe level	3,00	0	0	2	2
Total		5	3	3	11

GROUPS	Value	Asymp Std. Error	Approx	Approx
Veterans Interval by Interval Pearsons	0.149	0.083	0.74	0.467
Ordinal by Ordinal Spearman Correlation	0.145	0.086	0.718	0.479
N of Valid Cases	26			
Civilians Interval by Interval Pearsons	0.701	0.151	2,947	0.016
Ordinal by Ordinal Spearman Correlation	0.702	0.177	2.96	0.016
N of Valid Cases	11			

Table 6. Marital status and sitting within two groups of people with amputation

were unemployed. Of the total number of the participants in this research 89,1 % or 33 persons experienced

GROUPS		MARRIAGE Married	Single	Widow Widower	Total
Veterans sleeping					
good level	0,00	14	0	0	14
minimal level	1,00	5	0	0	5
moderate level	2,00	4	1	0	5
severe level	3,00	1	0	0	1
lowest level	5,00	1	0	0	1
Total		25	1	0	26
Civilians sleeping					
good level	0,00	3	3	0	6
minimal level	1,00	2	0	0	2
moderate level	2,00	0	0	3	3
Total		5	3	3	11

Symmetric Measures

GROUPS	Value	Asymp Std. Error	Approx	Approx
Veterans Interval by Interval Pearsons	0.183	0.113	0.912	0.371
Ordinal by Ordinal Spearman Correlation	0.249	0.126	1.258	0.221
N of Valid Cases	26			
Civilians Interval by Interval Persons	0.690	0.156	2.860	0.019
Ordinal by Ordinal Spearman Correlation	0.581	0.276	2.141	0.061
N of Valid Cases	11			

Table 7. Distribution according to marital status and sleeping

chronic LBP while 10,9 % or 4 persons did not have LBP signs. Using OSW index higher level of social disfunctionality was identified among civilians compared to the war veterans (p<0,02). This finding could be explained by the fact that the group of civilians belongs to the older group of the participants, which in general have poor level of social integration (see Table 5). Compared to the war veterans the married civilians in this research have higher level of disability during seating (p<0,01), sleeping (p<0,05) and traveling (p<0,01) which is indicated in the Tables 6, 7 and 8. More serious problems in civilians during seating, sleeping and traveling could be explained by the fact that co morbidity is usually characteristics of older people as well as by the fact that majority of the participants in this group are widows and in general are not motivated to travel.

		MARRIAGE			
GROUPS		Married	Single	Widow Widower	Total
Veterans travel					
good level	0,00	10	0	0	10
minimal level	1,00	12	0	0	12
moderate level	2,00	3	1	0	4
Total		25	1	0	26
Civilians travel					
good level	0,00	3	2	0	5
minimal level	1,00	1	0	0	1
moderate level	2,00	1	1	2	4
lowest level	5,00	0	0	1	1
Total		5	3	3	11

Symmetric Measures

GROUPS	Value	Asymp Std. Error	Approx	Approx
Veterans Interval by Interval Pearson s	0.353	0.161	1.851	0.077
Ordinal by Ordinal Spearman Correlation	0.32	0.15	1.652	0.111
N of Valid Cases	26			
Civilians Interval by Interval Pearson	0.692	0.138	2.426	0.038
Ordinal by Ordinal Spearman Correlation	0.586	0.217	2.172	0.058
N of Valid Cases	11			

Table 8. Distribution according to marital status and travel within two groups

Conclusion

Chronic LBP syndrome was identified in 89,1 % of the participants (33 persons) in this research. Higher level of social disfunctionality ($p<0,05$) was identified among civilian amputees compared to war veterans. More serious problems during seating, sleeping and traveling were identified among civilians who are single, since there is no one to help them during these activities and in general they are less motivated.

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