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QUALITY OF LIFE OF PATIENTS WITH CERVICOGENIC HEADACHES
Jakość życia pacjentów z bólem głowy pochodzenia szyjnego

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Abstract

Introduction: Although the quality of life has been investigated in a numerous of previous studies, still is little known about this topic among patients with cervicogenic headache diagnosis.
Aim of the study: To assess QoL in CGH group and to explore the relationship of QoL to selected demographic and medical variables.
Material and methods: A total of 47 patients with cervicogenic headache were examined. On average, participants were 47,21 years old and 55,3% was female. To evaluate a quality of life the WHOQOL-BREF questionnaire was used.
Results: Means and standard deviations in each domain were as follows: DOM1=10,04±3,07; DOM2=14,49±2,88; DOM3=16,59±3,12; DOM4=15,80±2,85. The highest mean values were noted in following items: Q25 (transport; M=4,46), Q11 (body appearance; M=4,33) and Q13 (vailability of information; M=4,31). The lowest scores concerned Q3 (pain; M=1,86), Q4 (dependence on medical treatment; M=1,94) and Q10 (energy; M=2,07). Differences in QoL due to age, sex and selected medical variables were observed. Relationship of QoL to education level, marital status and local residence were also found.
Conclusions: The present study supports the hypothesis that quality of life impairment is likely to be present in clinical samples of CGH and is directly associated with duration time of CGH and number of CGH incidence during day.

Keywords: quality of life, QoL, WHOQOL-BREF, cervicogenic headaches.

INTRODUCTION

Cervicogenic headache (CGH) is a syndrome characterized by chronic hemicranial pain that is referred to the head from either bony structures or soft tissues of the neck [1]. The pathophysiology of CGH results from a convergence of sensory input from the upper cervical spine into the trigeminal spinal nucleus, including input from: upper cervical facets, upper cervical muscles, C2-C3 intervertebral disc, vertebral and internal carotid arteries, dura mater

of the upper spinal cord and posterior cranial fossa [2]. Recently, CGHs were estimated to affect 2.2% of the population [3] and is associated with significant disability and costly treatment [4].

Quality of life (QoL) has been conceptualized in numerous ways and has a wide range of contexts and interpretations. According to WHO (World Health Organization), this term is defined as an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment [5].

QoL has been investigated in a number of previous studies, including healthy individuals [6,7] as well as patients with various medical conditions, such as: low-back pain [8], diabetes [9], multiple sclerosis [10], cutaneous melanoma [11], and among patients: after injuries [12], after intensive care [13]. To date, only in one study examined quality of life in patients with cervicogenic headache [14]. In the study of 37 patients with cervicogenic headache and 292 control group, it was found that mean scores of quality of life in the CGH group were significantly worse in all of eight SF-36 domains than those of the control group, indicating that the degree of disability in CGH is substantial [14]. In mentioned above research the Short Form Health Survey (SF-36) were used. This tool consists of 36 items allowing assess eight health-related dimensions that forming two components of health. The second questionnaire, which is often used interchangeably to evaluation of quality of life is a WHOQOL-bref. However, in fact these instruments measure the different QoL constructs. The SF-36 seems to measure HRQoL, while the WHOQoL measures global QoL. For example, one of the physical functioning item of the SF-36 asks: "Do your health limit you in bathing and dressing yourself?", whereas the WHOQoL asks: "How satisfied are you with your ability to perform your daily living activities?"

The purpose of this study was to apply the WHOQoL questionnaire among patients with cervicogenic headache and to determine whether consistent with previous research quality of life would be reduced in this sample. Lastly, I explored the relationship of QoL to background variables, such as: age, sex, education level, marital status, local residence; and to medical variables, such as: duration of CGH, affected side by CGH, incidence of CGH during day.

MATERIALS AND METHODS

Participants

A total of 47 patients met the study criteria (age between 18 and 65 year, headache duration at least 6 months, no other illness such as: rheumatoid arthritis, cervicobrachialgia, cancer, psychiatric disorders and no trauma history). Patients were diagnosed according to the criteria of The Cervicogenic Headache International Study Group [15]. On average, participants were 47,21 years old (SD= 10,16; range= 35-65). The mean body height was 172,51 cm (range: 160,50 - 184,50 cm); the mean body weight was 70,36 kg (range: 55,0 – 98,0 kg). The duration time of CGHs ranged from 1 to 11 years, with a mean duration of 3,2 years (SD=4,1 years).

Measures

The questionnaire utilized for measuring quality of life was the polish language version of the WHOQOL-bref (World Health Organization Quality of Life). This scale is an abbreviated 26-item version of the WHOQOL-100 containing items that were extracted from the WHOQOL-100 field trial data. Questionnaire comprises two items from the Overall QoL and General Health and 24 items of satisfaction that divided into four domains: Physical health with 7 items (DOM1), psychological health with 6 items (DOM2), social relationships with 3 items (DOM3) and environmental health with 8 items (DOM4). Each item is rated on a 5-point Likert scale (from 1 to 5 on a response scale). The mean score of items within each domain is used to calculate the domain score. The domain scores are ranged from 4 to 20 points, with higher scores denoting higher QoL [16-18].

Statistical analysis

Because the data were not normally distributed, comparisons between mean scores were conducted using the Mann-Whitney nonparametric test. Statistical significance was set at $P<0,05$. I used the statistical software package for the medical sciences (Statistica StatSoft, version 10).

RESULTS

Of all participants who completed WHOQoL-bref questionnaire 26 persons (55,3%) were female, with a mean age of 45,82 ± 9,77 and 21 persons (44,7%) were male with a mean

age of 47,76 ± 10,29. There was no significant difference between them in terms of age (*P=0,547*). 87,2% (n=41) of subjects reported themselves to be healthy. The remaining 12,8% (n=6) reported having one additional health condition problem: thyroid problem (n=2; 4,2%), kidney problem (n=1; 2,15%); heart problem (n=1; 2,15%); vision problem (n=1; 2,15%) and gastrointestinal problem (n=1; 2,15%). The characteristics of study sample are shown in Table 1.

Table 1. Characteristics of study population (*n*=47)

Characteristics	n	%
Sex:		
Male	21	44,7
Female	26	55,3
Age (year):		
≤ 47	25	53,2
>47	22	46,8
Education level:		
vocational	15	31,9
higher	32	68,1
Marital status:		
Single/Divorced	5	10,6
Married	42	89,4
Local residence:		
Urban	30	63,8
Rural	17	36,2
Duration of CGH (year):		
≤ 3	28	59,6
>3	19	40,4
Affected side by CGH:		
left	20	42,5
right	27	57,5
Incidence of CGH during day:		
once a day	10	21,3
several time	29	61,7
most of the day	8	17,0

The mean and standard deviation for each WHOQOL-bref domain and each WHOQOL-bref item are given in Table 2. The mean score of four domains of WHOQOL-BREF according to age, education level, marital status, local residence, duration time of CGH, affected side of the head by CGH and number of CGH incidence during day, are separately presented in Table 3.

Table 2. Mean (M) and standard deviation (S.D.) for each WHOQOL-bref domain and item

VARIABLES	Female: n=21 M±S.D.	Male: n=26 M±S.D.	All: n=47 M±S.D.
Q1 - Overall Quality of life	3,74±0,79	3,54±0,84	3,67±0,90
Q2 - General Health	3,91±0,85	3,80±0,83	3,82±0,87
Physical Health Domain (DOM 1)	**9,57±2,63**	**10,59±2,81**	**10,04±3,07**
Q3 - Pain	1,66±0,72	2,02±0,69	1,86±0,66
Q4 - Dependence on medical treatment	1,79±0,63	2,13±0,63	1,94±0,58
Q10 - Energy	2,22±0,61	1,99±0,80	2,07±0,57
Q15 - Mobility	2,28±0,59	2,29±0,77	2,28±0,60
Q16 - Sleep	2,33±0,84	2,62±0,76	2,56±0,61
Q17 - Activities of daily living	3,44±0,88	3,46±0,91	3,45±1,00
Q18 - Working capacity	3,01±0,80	4,00±0,93	3,38±0,76
Psychological Health Domain (DOM 2)	**14,03±3,11**	**14,62±2,92**	**14,49±2,88**
Q5 - Positive feelings	3,84±0,76	3,24±0,80	3,52±0,78
Q6 - Meaningfulness of life	3,51±0,65	3,71±0,81	3,66±0,81
Q7 - Concentration	2,42±0,73	2,75±0,69	2,67±0,62
Q11 - Body appearance	4,06±0,89	4,49±0,94	4,33±1,06
Q19 - Satisfaction with oneself	3,37±0,74	3,52±0,81	3,46±0,83
Q26 - Negative feelings	3,85±0,82	4,23±0,84	4,07±0,89
Social Relations Domain (DOM 3)	**16,47±2,59**	**16,64±2,75**	**16,59±3,12**
Q20 - Personal relations	4,22±0,85	4,06±1,04	4,14±0,92
Q21 - Sex life	3,92±0,89	4,14±1,08	4,06±0,94
Q22 - Support from friends	4,20±0,79	4,26±1,00	4,23±0,84
Environment Domain (DOM 4)	**15,54±2,87**	**15,98±2,60**	**15,80±2,85**
Q8 - Physical safety and security	4,20±0,99	4,17±1,04	4,19±1,11
Q9 - Healthy physical environment	3,29±0,78	3,64±0,97	3,51±1,00
Q12 - Financial resources	4,00±0,86	4,21±0,92	4,09±0,98
Q13 - Availability of information	4,10±0,88	4,43±0,93	4,31±0,94
Q14 - Opportunities for leisure activities	3,56±0,79	3,71±0,88	3,60±0,81
Q23 - Home environment	4,16±0,94	4,27±1,03	4,20±0,92
Q24 - Access to health services	3,34±0,85	3,07±1,02	3,22±0,91
Q25 - Transport	4,43±1,10	4,47±1,06	4,46±0,99

Regarding the general estimate of quality of life (Q1) and general satisfaction with health status (Q2) female did not differ statistically significantly from male. However, in relation to results obtained in DOM1, males significantly ($p<0,001$) higher assessed their physical health - compared to female. The same trend were observed for the psychological domain ($p=0,008$) and enviromental domain ($p=0,016$), although the levels of statistical significance were slightly lower. No significant gender difference in social domain was found.

Within the domain of Physical Health significant differences were found in Q3 ($p=0,047$), Q4($p=0,042$) and Q18 ($p<0,001$), indicated that perception of limitations due to

pain, need of medical treatment and work incapacity was more pronounced in females than in males.

Within the domain of Psychological Health significant main effects of gender were found for Q5 (p<0,001), Q7 (p<0,049), Q11 (p=0,027) and Q26 (p=0,036). It show that females better than males estimated their enjoyment in life. In contrary to Q5, males reported better concentration, perceived less negative feelings and were more satisfied from their body appearance than females. Within the domain of Environment significant differences between men and women were found in Q9 (p=0,042) and Q13 (p=0,048). This results suggested that males better rated their environment healthier and availability to information in comparision to females. In case of social domain, no significant gender effect was demonstrated.

Table 3. Comparison of the WHOQOL-BREF mean scores in four domains according to sex, age, education level, marital status, local residence, duration of CGH, number of CGH incidence during day (*n=47*)

VARIABLES	WHOQoL-BREF Domains: Mean ± Standard Deviation			
	Physical Health	**Psychological Health**	**Social Relationships**	**Enviromental Health**
Age (year):				
≤ 47	10,26±2,54	14,24±2,28	17,02±2,66	15,75±3,03
>47	9,96±2,68	14,86±2,60	16,22±2,42	15,84±2,96
P value	0,227	**0,004**	**<0,001**	0,861
Education level:				
vocational	9,71±2,73	14,75±2,35	16,29±2,53	15,66±2,85
higher	10,32±2,51	14,27±2,37	16,84±2,76	15,91±2,66
P value	**0,013**	**0,046**	**0,037**	0,193
Marital status:				
Single/Divorced	10,02±2,89	14,56±2,78	16,12±2,86	15,71±2,99
Married	10,11±3,02	14,45±2,64	17,03±2,47	15,88±3,08
P value	0,919	0,724	**<0,001**	0,315
Local residence:				
Urban	9,39±2,86	14,47±2,41	16,96±2,53	16,10±3,16
Rural	10,63±2,45	14,53±2,56	16,45±2,92	15,58±2,38
P value	**<0,001**	0,936	**0,035**	**0,036**
Duration time of CGH (year):				
≤ 3	10,37±2,37	15,06±2,47	17,13±3,12	15,93±2,63
>3	9,68±2,62	14,11±2,89	16,05±2,88	15,67±2,87
P value	**<0,001**	**<0,001**	**<0,001**	0,218
Affected side of head by CGH:				
left	9,99±2,22	14,50±2,38	16,58±3,12	15,71±2,74
right	10,08±2,54	14,39±2,46	16,66±2,61	15,90±2,85
P value	0,869	0,762	0,912	0,561
Incidence of CGH during day:				
once a day	10,66±3,06	14,89±2,96	16,91±3,23	15,82±2,70
several time	10,25±2,86	14,51±2,75	16,59±3,06	15,87±2,63
most of the day	9,74±2,93	13,99±2,80	16,37±3,12	15,77±3,15
P value	**<0,001**	**<0,001**	**0,024**	0,754

DISCUSSION

The present study is the second to date describing Quality of Life in a clinical sample with cervicogenic headaches. One of the major objectives of this study was to evaluate, whether consistent with previous study by van Suijlekom et al., quality of life will be restricted in this group, applying the other questionnaire (WHOQoL-bref). According to my assumptions and posed research questions, findings presented in this paper support the hypothesis, that quality of life is impaired in this group of patients. Among the four domains of WHOQOL-BREF, the lowest mean score was found in Domain 1 (Physical Health; Mean=10,04), implying limited activities of daily living, more dependence on medicinal substances and medical aids, not enough energy and mobility, more pain and discomfort, insufficient sleep and rest and poor work capacity. Moreover, the highest mean score was shown for Domain 3 (Social Relations; Mean=16,59), indicating very good personal relations, successful sexual life and very good support from friends (See Table.2). The mean values in this study for the Physical Domain (DOM1) and Psychological Domain (DOM2) were lower, and for Social Relation Domain (DOM3) and Environmental Domain (DOM4) were higher - compared to a norms reported in the literature for healthy control groups from other studies [19-21].

Interestingly, duration time of CGH and number of CGH incidence during day were linked to worse quality of life. It should be noted that sex and age also contributed to the differences results across samples. Such a relationship was also observed between QoL and other demographic data: marital status, local residence, education level (See Table.3), what was consistent to Abdollahpour studies, however, mentioned above study was performed among governmental staff, not among clinical subjects [22].

The present data demonstrate substantial impairment of QoL among clinical patients with CGH diagnosis. Although the final results are consistent with previous Dutch studies, comparison of data between the two studies should be done cautiously due to confounding factors such as different questionnaires measure quality of life, as well as, cross-cultural differences.

The study is not without limitations. A major weakness lies in the small sample size (n=47), which may have resulted in type I errors related to fit statistics and sets the limitations on the generalizability of the results.

CONCLUSIONS

The present study supports the hypothesis that quality of life impairment is likely to be present in clinical samples of CGH and is directly associated with duration time of CGH and number of CGH incidence during day.

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