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Assessment of functional capacity in patients with dementia. Ocena sprawności funkcjonalnej pacjentów z otępieniem.

Summary
Introduction. The physical performance is affected by many factors, health (systemic diseases, and organ) and socio-demographic characteristics (age, sex, education, place of residence).
The aim of this study was to assess changes in functional capacity of patients with dementia-ranking, Psychogeriatrycznym hospitalized.
The study used a method of diagnostic survey and measurement. The research was conducted in the Department of Psychiatry Psychogeriatrycznym Specialist Healthcare Team in Yaroslavl, in the period from October 2009 to February 2011. The study group consisted of 176 patients. Among the respondents were 112 women (63.64%) and 64 men (36.36%). Age of the patients ranged from 60 to 93 years.
Results. Length of hospital stay of patients ranged from 49 to 174 days. There was a decrease in functional capacity hospitalized. Particularly noticeable is the drop in performance after a week of hospitalization (2,375). However, in subsequent measurements, and gradually increases at the end of achieving the result is similar to the origina.
Conclusions. Functional efficiency decreases with increasing severity of dementia. The reduction in functional results in the need to use third-party assistance in patient care conditions requires additional medical staff responsibilities.

Key words: dementia, efficiency funkcjomnaln

Streszczenie
Wstęp. Na sprawność funkcjonalną ma wpływ wiele czynników zdrowotnych(choroby układowe i narządowe) i społeczno-demograficznych (wiek, płeć, wykształcenie, miejsce zamieszkania).
Celem pracy była ocena zmian sprawności funkcjonalnej pacjentów z postawionym rozpoznaniem otępienia, hospitalizowanych na oddziale Psychogeriatrycznym.
W badaniu wykorzystano metodę sondażu diagnostycznego i pomiar. Badania były prowadzone w Oddziale Psychogeriatrycznym Specjalistycznego Psychiatrycznego Zespołu Opieki Zdrowotnej w Jarosławiu, w okresie od października 2009 do lutego 2011 roku. Grupę badawczą stanowiło 176 pacjentów. Wśród osób badanych było 112 kobiet (63,64%) i 64 mężczyzn (36,36%). Wiek badanych mieścił się w przedziale od

60 do 93 lat.
Wyniki. Długość pobytu pacjentów w szpitalu wahał się od 49 do 174 dni. Zaobserwowano spadek sprawności funkcjonalnej u hospitalizowanych. Szczególnie widoczny jest spadek sprawności po tygodniu hospitalizacji (2,375). Natomiast w kolejnych pomiarach stopniowo wzrasta i na koniec osiągania wynik zbliżony do początkowego.
Wnioski. Sprawność funkcjonalna spada wraz ze wzrostem zaawansowania otępienia. Obniżenie sprawności funkcjonalnej skutkuje koniecznością korzystania z pomocy osób trzecich a w warunkach opieki stacjonarnej nakłada na personel medyczny dodatkowe obowiązki.

Słowa kluczowe: otępienie, sprawność funkcjomnalna

Introduction

In the assessment of elderly patients are used standardized international scales, which allow on one hand to determine the short and long term goals of care, on the other hand - offer the possibility of monitoring. This is called a comprehensive geriatric care. The main component of a comprehensive geriatric care is assessment of patient's efficiency, or ability to be independent from other persons in the performance of vital signs (Activities of Daily Living, ADL) and mobility, control of body functions, nutrition and hygiene of the body.

The physical performance is affected by many factors, health (systemic and organ diseases) and socio-demographic characteristics (age, sex, education, place of residence).

Aging process is often accompanied by multisystem pathology and emotional problems which may pose a risk limits, and even disability in performing activities of daily living. A thorough and multi-faceted analysis of the physical and psychosocial condition of elderly people is a measure to ensure the quality of care.

One of the conditions that increases the functional failure of dementia. Dementia is a disease that affects intelligence, memory, personality and emotional life of patients. It may occur in association with other diseases, and usually passes when the underlying condition is treated. However, it often happens that dementia is a major, independent health problem and is progressive. Dementia develops over several years, during which the patient is experiencing increasing problems with memory, is confused, and goes through personality changes. Even simple tasks at home can cause problems, which in turn leads to a situation where the patient needs more and more help from others.

Aim of the research

The aim of this study was to assess changes in functional capacity of patients with dementia, hospitalized in Psycho geriatric Ward.

Materials and methods

The study used a method of diagnostic survey and measurement. The survey used a questionnaire with data and socio-medical questions about established medical diagnoses. However, measurements were made using ADL scale (Activities of Daily Living), which assesses the patient's independence for the following tasks: bathing, dressing, toilet,

sphincter control, eating and mobility. Actions were assessed on a 0-1 scale.The patient is given one point for each task if it is able to be independently performed or 0 points, when it is not. The result of 0-2 points means that the patient is completely self-reliant and requires total care around the clock. Partly functional is the one that got 3-4 points and 5-6 points received fully operational patients. Assessment should be based on observation of the patient and not on the basis of the questions asked him. During the initial evaluation when the patient was admitted to the ward, the scale was filled on the basis of data obtained from family / carers. ADL scale is a standardized scale and generally available. Patients were also evaluated for the cognitive impairment of functions and the degree of dementia by means of the Mini-Mental scale (Mini-Mental State Examination - M-MSE). It contains six major tasks of checking the level of functioning of basic cognitive processes, such as: orientation in time and place, memory, attention and counting, recalling, language functions, constructional praxis. Number of points available was 30. 27-30 score is determined as being correct. Patients receiving a score of 24 to 26 points are characterized as having a cognitive disorder, but without dementia. A score below 24 points indicates that there may be dementia in the respondent's.

The testing was approved by the Ethics Committee of the Medical University in Lublin. Consent to participate in the study was obtained from the patients themselves or their carers, in the case of significant cognitive impairment.

For the description of the results were used the following statistics:the arithmetic mean, standard deviation (the most common measure of variability), median, minimum and maximum values.

Two as statistical tests were used, the Mann Whitney test and Wilcoxon test. Mann Whitney U test is nonparametric equivalent of t-test and is used to check whether the treatment groups come from different populations. It can also be used when the size of the group is small. In the description of the studies were used abbreviations relating to particular statistics: Z - value of Mann-Whitney test used for groups of size n> 20.

Wilcoxon test - nonparametric equivalent of t-test for variables linked. The study used an analysis of the differences between the two measurements related. The thesis uses the abbreviation referring to this test: Z - Wilcoxon value of the number of groups n> 25.

The study also used the following abbreviations relating to statistical analysis: N - number of patients, n - number of subgroups, p - level of significance. For a sufficient level of significance was set at $P < 0.05$. All statistical calculations were performed using the statistical package STATISTICA 6.0 PL.

Organization of the research

The research was conducted in the Psycho –Geriatric Department of Psychiatry Specialist Healthcare Hospital in Jaroslaw, in the period from October 2009 to February 2011. The study group consisted of 176 patients, of whom 119 had an established diagnosis of dementia and 57 of the control group-they have obtained over 24 points in MMSE scale. Among the respondents were 112 women (63.64%) and 64 men (36.36%).

Age of the patients ranged from 60 to 93 years. The arithmetic average age in this group was 74.67 years in standard deviation of 7.93. The median age was 75 years.

Age range from 60 to 65 years was represented by 30 patients (17.05%). At the age

of 66 to 70 years were 25 patients (14.20%). From 71 to 75 years were 34 respondents (19.32%). The most numerous age group was from 76 to 80 years, in which there were 42 respondents (23.86%). From 81 to 85 years were 29 patients (16.48%). At the age of 86 to 90 years were 14 patients (7.95%). More than 90 years had two patients (1.14%).

Among the respondents were 67 urban habitants (38.07%) and 109 village residents (61.93%).

Due to the education, the largest group were people with vocational education - there were 77 (43.75%). Primary education had 42 respondents (23.86%). Secondary education had 40 patients (22.73%). People with university degree were 17 (9.66%).

Most of the respondents came to the ward from the family home, where lived with the family - it concerned 108 of them (61.36%). Persons living alone before admission were one-third of the study group (59, 33.52%). A few people came out of nursing homes (4, 2.27%) and of care or nursing care and treatment centers (5, 2,84).

During the research, four patients died (2.27%), three of whom came to the hospital from the family home, and one respondent from ASW / ZOL. 94 people returned to the family home (53.41%). To their homes returned 32 respondents (18.18%) . For nursing homes went 4 people (2.27%), for 3 (1.70%) it was the return, one woman (0.57%) lived alone before hospitalization. After leaving the hospital of care or nursing care and treatment centers went 42 respondents (23.86%) - in the group four respondents were there before (2.27%), 1 (0.57%) went to the hospital from DPS another 11 (6.25%) from family houses, and 26 (14.77%) lived alone before.

Length of hospital stay ranged from 49 to 174 days. The arithmetic mean length of hospitalization was 79.57 with a standard deviation was equal to 9.29. The median was 80 days. Most - 70 patients (39.77%) were hospitalized for 76-80 or 81-85 days. Another 17 people (9.66%) spent in the hospital from 71 to 75 days. Over 85 days were hospitalized 9 patients (5.49%). For 10 patients (5.68%), length of hospital stay was less than 71 days.

The test results

On the basis of preliminary interviews with caregivers of persons approved at the ward, the degree of independence of the patient's vital signs (ADL) was evaluated by Katz scale. In fully functional at the time of adoption of the unit were 94 people (53.41%). Partially efficient there were 38 respondents (21.59%). Completely inefficient in terms of vital signs were 44 respondents (25.00%). During the test, measurements were made using 6 ADL scale. The first measurement was performed at admission, the second after a week of hospitalization, the third after four weeks, the fourth at 8 weeks, 5 w12 last week and on the patient's discharge from the ward.

Below in Table 1 is a detailed distribution of the results ADL scale.

Tab 1. The results of the measurements of ADL

Measurement	ADL scale points						
	0	1	2	3	4	5	6
initial (N=176)	21 (11,93%)	2 (1,14%)	21 (11,93%)	28 (15,91%)	10 (5,68%)	39 (22,16%)	55 (31,25%)
1 (N=176)	38 (21,59%)	5 (2,84%)	42 (23,86%)	54 (30,68%)	20 (11,36%)	15 (8,52%)	1 (1,14%)
2 (N=176)	5 (2,84%)	6 (3,41%)	50 (28,41%)	50 (28,41%)	40 (22,73%)	23 (13,07%)	2 (1,14%)
3 (N=175)	3 (1,71%)	(2,29%)	40 (22,86%)	30 (17,14%)	42 (24,00%)	54 (30,86%)	2 (1,14%)
4 (N=167)	3 (1,80%)	3 (1,80%)	34 (20,36%)	28 (16,77%)	16 (9,58%)	78 (46,71%)	5 (2,99%)
final (N=172)	3 (1,74%)	3 (1,74%)	33 (19,19%)	30 (17,44%)	16 (9,30%)	82 (47,67%)	5 (2,91%)

Calculations were also made for descriptive statistics of measurements, as illustrated in Table 2.

Tab 2. Descriptive statistics of ADL results

Measurement	the arithmetic mean	standard deviation	median
Initial - (N=176)	3,9375	2,0344	5
1 - (N=176)	2,3750	1,5734	3
2 - (N=176)	3,0852	1,2369	3
3 - (N=175)	3,5657	1,3196	4
4 - (N=174)	3,8263	1,4141	4
Final - (N=172)	3,8547	1,4004	5

In order to determine the dynamics of changes in the functional capacity of subjects the results obtained are shown graphically in Figure No. 1 There was a decrease in functional capacity of hospitalized. Particularly noticeable is the efficiency decrease after a week of hospitalization (2,375). However, in subsequent measurements it gradually increases and at the end of achieves similar result to the original.

Początkowy – initial, Nr – no, Końcowy – final, Średnia wartość ADL – Average ADL value

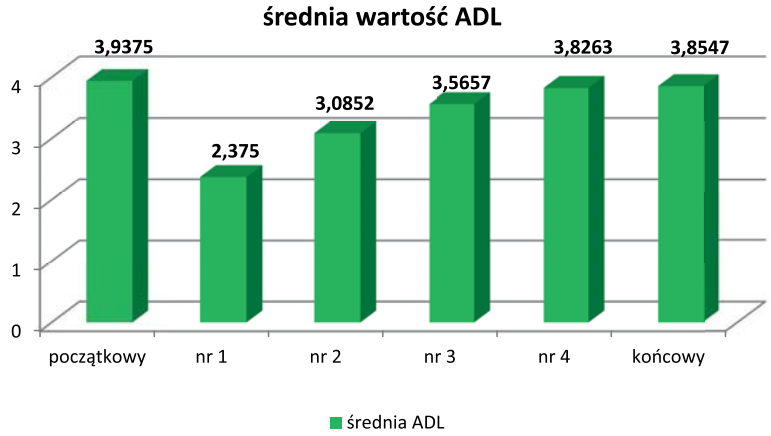

Fig. 1. Average values of measurement of Katz scale

In order to compare the differences between the ADL measurements were also made measurements of pair wise comparisons using the Wilcoxon test (nonparametric test for related measurements). Measurement No. 1, No. 2 and No. 3 differ on a statistically significant level with each other and with measurements: the initial and terminal 4. There were no significant differences between the measured initial and final 4. Results of the analyzes shown in the following table.

Tab. 3 Results of the comparison of measurements of functional capacity.

On.	Compared pair	N valid	Z	p
1	Initial vs no 1	176	9,2336	0,0000
2	Initial vs no 2	176	5,8602	0,0000
3	Initial vs no 3	175	2,6321	0,0085
4	Initial vs no 4	167	0,5959	0,5513
5	Initial vs final	172	0,7465	0,4554
6	No 1 vs no 2	176	7,7270	0,0000
7	No 1 vs no 3	175	9,2001	0,0000
8	No 1 vs no 4	167	9,3967	0,0000
9	Nr 1 vs final	172	9,5792	0,0000
10	No 2 vs no 3	175	6,7464	0,0000
11	No 2 vs no 4	167	7,7726	0,0000
12	No 2 vs final	172	8,0468	0,0000
13	No 3 vs no 4	167	4,8086	0,0000
14	No 3 vs final	172	5,1135	0,0000
15	No 4 vs final	167	0	–

ADL and gender

For each measurement using the U Mann-Whitney test there were compared the differences between the distribution of respondents by gender. There were no significant differences between men and women during the measurements: the initial and the No. 1 The results obtained by women in the assessment of functional capacity ADL scale were higher than men in the measurement results No. 2, No. 3, No. 4 and the final measurement.

Tab. 4 The results of comparison of the differences in the functional capacity of men and women

	Women (K)		Men(M)		The value of statistics
measurement	the arithmetic mean	standard deviation	the arithmetic mean	standard deviation	
Initial (K-112, M-64)	3,9107	1,9385	3,9844	2,2074	Z=0,7350 p=0,4623
no 1 (K-112, M-64)	2,5000	1,5480	2,1563	1,6057	Z=-1,5685 p=0,1168
no 2 (K-112, M-64)	3,2321	1,1777	2,8281	1,3039	Z=-2,1420 p=0,0322
no 3 (K-111, M-64)	3,7748	1,1885	3,2031	1,4604	Z=-2,4629 p=0,0138
no 4 (K-107, M-60)	4,0841	1,2821	3,6667	1,5290	Z=-2,8119 p=0,0049
Final (K-109, M-63)	4,0917	1,2659	3,4444	1,5322	Z=-2,5680 p=0,0102

ADL and age

Spearman's rank correlation has revealed a negative correlation between age and the results obtained in the ADL scale for each measurement.

Tab. 5 Performance of correlation analysis of the results for age and ADL

measurement	N	r_S	P
initial	(N=176)	-0,2935	0,0007
No 1	(N=176)	-0,3206	0,0000
No 2	(N=176)	-0,4003	0,0000
No 3	(N=175)	-0,4086	0,0000
No 4	(N=167)	-0,4432	0,0000
final	(N=172)	-0,4510	0,0000

ADL and place of residence

Comparison of differences using the Mann-Whitney test did not detect the existence of significant differences between urban and rural population of the results of the ADL.

Tab. 6 The results comparing differences in functional capacity between urban and rural population

	Village habitants (W)		Urban habitants (M)		The value of statistics
Measurement	the arithmetic mean	standard deviation	the arithmetic mean	standard deviation	
initial (W-109, M-67)	3,9817	2,0771	3,8657	1,9763	Z=0,5637 p=0,5730
No 1 (W-109, M-67)	2,3761	1,4580	2,3731	1,7567	Z=0,990 p=0,9211
No 2 (W-109, M-67)	3,1284	1,1394	3,0149	1,3871	Z=0,4692 p=0,6389
No 3 (W-108, M-67	3,6111	1,2740	3,4925	1,3967	Z=0,4835 p=0,6288
No 4 (W-102, M-65)	3,8627	1,3427	3,7692	1,5286	Z=0,1740 p=0,8619
final (K-106, M-66)	3,8962	1,3233	3,7879	1,5243	Z=0,2362 p=0,8133

ADL and dementia

After five weeks of admission to the ward there has been assessed the degree of dementia scale using the Mini-Mental State Examination test. The arithmetic mean of the scale of the study was equal to 16.3295 (SD 7.9982) and median of 17 points. The results ranged from 0 to 29 points.

Based on the results of this study it was found that 119 patients (67.61%) achieved a result of testifying to dementia. The result of the lack of providing dementia received the remaining 57 patients (32.39%), who were the control group.

A detailed analysis of MMSE points to different levels of cognitive impairment and the related degree of dementia. The group without impairment involved 11 patients (6.25%). Light cognitive disorders, but without dementia was observed in 46 patients (26.14%). Light degree of dementia was diagnosed in 10 patients (5.68%). The average level of dementia was the most frequent in the group and referred to 68 cases (38.64%). Advanced dementia was found in 41 patients (23.30%).

Based on the final diagnosis in the group of subjects had a total of 113 cases of dementia (64.20% of the research group). Most often diagnosed vascular dementia was reported in 79 patients (44.89%). Unspecified dementia occurred in 20 patients (11.36%). Dementia of the Alzheimer's type was diagnosed in 9 patients (5.11%). In 5 patients (2.84%) had dementia in other diseases classified.

Earlier studies described by MMSE indicate in the group the presence of 119 patients (67.61%) with dementia. Final medical diagnosis suggest 113 patients with dementia (64.20%). This means that 6 patients (3.41% of the total test group), despite the absence of diagnosed dementia, were low enough for the MMSE scores to be recognized as a dull. Comparison of the difference between the terminal diagnosis and the identification of dementia based on the results of the scale using the Wilcoxon test showed no statistical significance of the difference (Z = 1.0286, p = 0.3037).

Statistical analysis showed a positive correlation between the MMSE score and the scores on the ADL scale.

Tab. 7 Performance of correlation of the MMSE results with ADL scale results

measurement	N	r_S	P
initial	(N=176)	0,3339	0,0000
No 1	(N=176)	0,5525	0,0000
No 2	(N=176)	0,6867	0,0000
No 3	(N=175)	0,6680	0,0000
No 4	(N=167)	0,6870	0,0000
final	(N=172)	0,6980	0,0000

Analysis by U Mann-Whitney test showed the differences between the group of patients without and diagnosed with dementia revealed a statistically significant difference in the results of the two groups for all measurements except for the initial measurement.

Tab. 8 The occurrence of dementia and ADL score

Measurement	The subjects with dementia			The subjects without dementia			The value of statistics
	N	the arithmetic mean	standard deviation	N	the arithmetic mean	standard deviation	
initial	119	3,6134	2,2926	57	4,6140	1,0816	Z=1,6835 p=0,0923
no 1	119	1,8824	1,5136	57	3,4035	1,1474	Z=6,2139 p=0,0000
no 2	119	2,6303	1,1340	57	4,0351	0,8444	Z=7,1734 p=0,0000
no 3	118	3,0932	1,3008	57	4,5439	0,6566	Z=6,7323 p=0,0000
no 4	112	3,3304	1,4230	55	4,8364	0,6601	Z=6,2231 p=0,0000
final	115	3,3478	1,4083	57	4,8772	0,5997	Z=6,4832 p=0,0000

ADL and comorbidities

The statistical analysis of U Mann-Whitney test revealed a statistically significant difference in the results of ADL due to co-occurrence of stroke.

Tab. 9 Diagnosis of stroke and ADL score

Measurement	Patients with stroke			Patients without stroke			The value of statistics
	N	the arithmetic mean	standard deviation	N	the arithmetic mean	standard deviation	
initial	13	3,5385	2,3315	163	3,9693	2,0136	Z=0,5770 p=0,5640
no 1	13	1,9231	1,6564	163	2,4110	1,5663	Z=1,0408 p=0,2980
no 2	13	2,3846	1,5021	163	3,1411	1,2012	Z=1,7224 p=0,0850
no 3	13	2,8462	1,5191	162	3,6235	1,2903	Z=1,7809 p=0,0749
no 4	13	3,0000	1,4720	154	3,8961	1,3917	Z=2,1235 p=0,0337
final	13	3,0000	1,4720	159	3,9245	1,3759	Z=2,1955 p=0,0281

Another Statistical Analysis of U Mann-Whitney test revealed no statistically significant differences in the results ADL due to the coexistence of hypertension, atherosclerosis, diabetes type II, heart disease and degeneration of the spine. The results are presented in the following tables.

Tab. 10 Diagnosed hypertension and ADL score

Measurement	The subjects without hypertension			The subjects without hypertension			The value of statistics
	N	the arithmetic mean	standard deviation	N	the arithmetic mean	standard deviation	
initial	84	3,9405	1,9961	92	3,9384	2,7980	Z=0,2147 p=0,8299
no 1	84	2,4167	1,5617	92	2,3370	1,5917	Z=0,2014 p=0,0,8404
no 2	84	3,0238	1,2609	92	3,1413	1,2187	Z=0,6398 p=0,5223
no 3	84	3,3810	1,3876	91	3,7363	1,2368	Z=1,6964 p=0,0898
no 4	80	3,6750	1,5490	87	3,9655	1,2709	Z=1,0171 p=0,3091
final	83	3,6747	1,5310	89	4,0225	1,2521	Z=1,3023 p=0,1928

Tab. 11 Diagnosed with generalized atherosclerosis and ADL score

Measurement	The subjects with generalized atherosclerosis			The subjects without generalized atherosclerosis			The value of statistics
	N	the arithmetic mean	standard deviation	N	the arithmetic mean	standard deviation	
initial	88	3,2728	2,1905	88	4,1477	1,8541	Z=0,9395 p=0,3498
no 1	88	2,2614	1,5047	88	2,4886	1,6400	Z=0,8817 p=0,3779
no 2	88	2,9886	1,1695	88	3,1818	1,3003	Z=0,9661 p=0,3340
no 3	88	3,5455	1,2215	87	3,5862	1,4187	Z=4312 p=0,6663
no 4	85	3,8235	1,2741	82	3,8293	1,5540	Z=0,3809 p=0,7032
final	86	3,8721	1,2630	86	3,8372	1,5329	Z=0,2037 p=0,8386

Tab. 12 Diagnosed with type II diabetes and the result of the ADL

Measurement	The subjects with type II diabetes			The subjects without type II diabetes			The value of statistics
	N	the arithmetic mean	standard deviation	N	the arithmetic mean	standard deviation	
initial	40	4,0500	1,9994	136	3,9044	2,0508	Z=0,3036 p=0,7614
no 1	40	2,7250	1,5189	136	2,2721	1,5798	Z=1,8887 p=0,0589
no 2	40	3,0750	1,2687	136	3,0882	1,2321	Z=0,2807 p=0,7790
no 3	39	3,5641	1,4472	136	3,5662	1,2864	Z=0,2958 p=0,7674
no 4	38	3,6316	1,5320	129	3,8837	1,3786	Z=0,7164 p=0,4730
final	39	3,6667	1,5275	133	3,9098	1,3621	Z=0,6948 p=0,4872

Tab. 13 Diagnosed with coronary heart disease (CHD) and ADL score

Measurement	The subjects with CHD			The subjects without CHD			The value of statistics
	N	the arithmetic mean	standard deviation	N	the arithmetic mean	standard deviation	
initial	5	3,0000	2,2361	171	3,9649	2,0289	Z=1,0018 p=0,3164
no 1	5	2,4000	1,8166	171	2,3743	1,5719	Z=0,1291 p=0,8973
no 2	5	2,8000	1,7889	171	3,0936	1,2236	Z=0,1514 p=0,8797
no 3	5	2,8000	1,9235	170	3,5882	1,2999	Z=0,9224 p=0,3563
no 4	5	3,4000	1,6733	162	3,8395	1,4094	Z=0,5540 p=0,5795
final	5	3,4000	1,6733	167	3,8683	1,3951	Z=0,5970 p=0,5505

Tab. 14 Diagnosed degeneration of the spine and the result of the ADL

Measurement	The subjects with spine degeneration			The subjects without spine degeneration			The value of statistics
	N	the arithmetic mean	standard deviation	N	the arithmetic mean	standard deviation	
initial	8	4,8750	1,2464	168	3,8929	2,0562	Z=1,1506 p=0,2499
no 1	8	3,2500	1,5811	168	2,3333	1,5656	Z=1,7401 p=0,0818
no 2	8	3,5000	0,9258	168	3,0655	1,2484	Z=1,0334 p=0,3014
no 3	8	4,1250	0,8345	167	3,5389	1,3342	Z=1,1144 p=0,2651
no 4	8	4,5000	0,9258	164	3,7925	1,4279	Z=1,3339 p=0,1822
final	8	4,5000	0,9258	159	3,8232	1,4139	Z=1,2797 p=0,2006

Discussion

Cognitive disorders and their severity cause progressive decline in functional capacity of people affected by it. Initially, this decline relates to complex life functions such as handling money, preparing meals, use of public transport. In a further period of helplessness occurs even when performing simple activities of daily living, such as washing, using the toilet or dressing, or even eating (Borowiak, Block 2008).

The reduction in functional efficiency results in the need to use the help of other people in residential care conditions imposed on the medical staff additional responsibilities resulting from the exercise by the patient or assist him in the performance of vital signs.

For people with cognitive impairment additional aggravating factor of the functional failure is hospitalization, as a change in the existing residential environment. An numb person in the new place has a severity of behavioral disorders, easily loses in the ward, has a problem with finding a toilet, while performing the process of washing of the body has sometimes aggressive behavior. In addition, drugs administered to patients mainly because of behavioral disorders, sleeping disorders and emotional lability may, especially in the morning, cause confusion, difficulty in mobility. In this study this phenomenon also occurred, after a week of hospitalization efficiency test got much worse. In subsequent measurements there was a significant improvement in results, most likely associated with easing of symptoms associated with hospital admissions and getting used to people hospitalized in new environmental conditions.

In terms of functionality it has been shown that patients without dementia were more likely to achieve higher scores in the ADL scale, which indicates that they were more functionally fit. However, those with a diagnosis of dementia were obtained significantly worse results on the basis which classified them into groups of patients independent or partially dependent. With the acquisition by patients due to lower MMSE, they also obtained poor results ADL scale. This phenomenon confirms the finding according to the functional efficiency of cognitive disorders.

It also has been confirmed in the literature that cognitive function decreases with the age.

Similar studies conducted by Tomaszewski et al with SPPB scale showed that in patients with dementia there is less physical ability compared with those without cognitive impairment (Tomaszewski et al 2010). The relationship between cognitive impairment and physical ability was documented by a study of Malmström et al (Malmstrom, 2005), Tabbarah et al (Tabbarah et al.2002) and Rosano et al (Rosano et al 2005). The research conducted by Tabbarah shows that cognitive impairment may lead to reduced walking and increased risk of falls (Tabbarah et al 2002).

Białachowska analyzed the level of functional capacity in patients with Alzheimer's disease with moderate dementia. The research showed that all test persons with dementia are dependent on the complex life functions (telephone, shopping, going out of the house, managing with money). For basic operations largest range of dependence was in laying in bed, waking up, eating, dressing, personal hygiene, using the toilet. The longest retained activity was in independent movement (Białachowska, 2010).

The study of Bońkowskiego and Klich-Rączka among ZOL patients showed that patients residing in the plant health care are much functional impaired, and the primary cause of severe and long-term functional impairment were the consequences of stroke and dementia syndromes (Bońkowski, Klich-Hand, 2007).

The relationship between performance on a AMTS (decreased mental ability test) scale and independence in ADL also analyzed Płaszewska-Żywko et al and pointed to the existing relationship. The lower the scores were, the worse was the functional efficiency (Płaszewska-Żywko et al. 2008).

There also has been analyzed the relationship between efficiency by ADL and the coexistence of other diseases in the study group. Positive correlations were obtained in only one case, it referred to a stroke.

Conclusions

1. Functional efficiency decreases with increasing severity of dementia.
2. The reduction in functional results in the need to use third-party assistance in patient care conditions requires additional medical staff responsibilities.

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