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Functional Efficiency of Elderly Patients Hospitalized in Neurological Departments

Sprawność funkcjonalna pacjentów w podeszłym wieku hospitalizowanych w oddziałach neurologicznych

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Abstract

Introduction. Functional efficiency of the elderly can be defined as the ability to perform ordinary daily life tasks safely and independently.
Aim. The research aims at determining the functional efficiency of elderly patients hospitalized in neurological departments.
Material and Methods. The study was performed in 113 elderly patients hospitalized in neurological departments of hospitals in the city of Lublin. The research material was collected using two standardized tools: the Barthel index and the Katz index (ADL).
Results. When evaluating patients with the Barthel index, 38.00% of patients were assigned to category I; 52.20% to category II and 9.80% to category III. In the ADL scale, 68.10% of the respondents were fully functioning, 12.40% were moderately functioning, and 19.50% were disabled.
Conclusions. The study group of elderly patients in neurological departments exhibited moderate functional impairment. Age significantly differentiated the functional abilities of the research group. Education influenced the degree of independence in neurological patients. **(JNNN 2017;6(3):102–106)**
Key Words: functional efficiency, elderly patients, the Neurology Department.

Streszczenie

Wstęp. Sprawność funkcjonalna osób starszych może być określana jako zdolność do wykonywania normalnych codziennych życiowych zadań bezpiecznie i samodzielnie.
Cel. Celem pracy było określenie sprawności funkcjonalnej pacjentów w podeszłym wieku hospitalizowanych w oddziałach neurologicznych.
Materiał i metody. Badania przeprowadzono w grupie 113 pacjentów w podeszłym wieku przebywających w oddziałach neurologicznych szpitali na terenie miasta Lublina. Materiał badawczy zebrano za pomocą dwóch standaryzowanych narzędzi: skali Barthel i skali Katza (ADL).
Wyniki. Dokonując oceny pacjentów skalą Barthel stwierdzono, że 38,00% to pacjenci w I kategorii, 52,20% znalazło się w kategorii II a 9,80% zakwalifikowano do kategorii III. W ocenie skalą ADL 68,10% badanych były to osoby sprawne, 12,40% osoby umiarkowanie sprawne i 19,50% były to osoby niesprawne.
Wnioski. Badana grupa pacjentów starszych w oddziałach neurologicznych wykazywała umiarkowaną niesprawność funkcjonalną. Wiek istotnie różnicował sprawność funkcjonalną badanych pacjentów. Wykształcenie wpływało na stopień samodzielności pacjentów neurologicznych. **(PNN 2017;6(3):102–106)**
Słowa kluczowe: sprawność funkcjonalna, osoby starsze, oddział neurologiczny

Introduction

Functional efficiency of the elderly is defined as the ability to perform normal daily life tasks safely and independently [1].

Due to the individuality of aging process, the assessment of functional efficiency is often a difficult process. The assessment process should be multifaceted and its basis should include meticulous observation. The result of the evaluation should incorporate a holistic perception of an individual rather than merely the sum of the points obtained in the research tool [2].

Maintaining independence requires intellectual and physical fitness, at least in terms of freedom of movement. In order to assess objectively the ability to cope with everyday life, scales of functional status are utilized. The most commonly used tools are Activities of Daily Living (ADL) [3] or Barthel index [4], which assess the ability to meet the most basic needs of everyday life such as independent meal intake, move, wash, dress, use the toilet and sphincter functions; and the Instrumental Activities of Daily Living (IADL) [5] assessing complex daily activities that include ability to make a phone call, ability to use transportation, shopping, preparing meals, doing housework, and the ability to self-medication and financial management, which requires intellectual capacity [6].

The aim of the study was to determine the functional efficiency of elderly patients hospitalized in neurological departments.

Material and Methods

The study included 113 elderly patients hospitalized in neurological departments of hospitals in the city of Lublin. The study has been given an approval by the directors of hospitals to be led in hospitals facilitates. Moreover, patients also expressed their willing and voluntary consent to participate in the study. The research was conducted with respect for ethical principles and the anonymity of the participants.

Table 1 presents the characteristics of the study group.

The research material was collected using two standardized tools: the Barthel index and the Katz index (ADL).

Barthel's scale is used to assess self-care of patients. Depending on the extent of autonomy, the patient could receive from 0 to 100 points. On the basis of the assessment concerning the activities of daily life, three categories of patients were identified: category I — patients well dealing with activities of daily life (100–86 points); category II patients coping only partially with tasks of daily functioning, (21–85 points); category III patients are unable to perform most of their daily activities (0–20 points) [4,7].

Table 1. Socio-demographic characteristics of the researched group

Variable	%
Gender	
Female	51.0
Male	49.0
Age	
65–74 years old	59.0
75–90 years old	41.0
Marital status	
Single	34.0
Married	66.0
Education	
Elementary	12.0
Secondary	25.0
Vocational	36.0
Higher education	27.0
Place of residence	
Urban areas	57.0
Rural areas	43.0

The Katz scale is used to evaluate functional efficiency in daily activities. The tool contains six statements regarding the degree of autonomy. A low score indicates that the respondent is not independent; 5–6 points — good person; 3–4 points — moderately inactive; 2 points — seriously disabled person [8].

Research findings were analysed statistically. $P \leq 0.05$ was adopted as a significance level that indicated a statistically significant difference or a correlation.

Results

When evaluated with Barthel's scale, patients were given following scores: 38.00% patients in category I; 52.20% in category II and 9.80% in category III.

According to the ADL scale, 68.10% of the respondents were fully functioning, 12.40% were moderately fit, and 19.50% were disabled.

Table 2 presents the mean scores for patients on the above scales.

Table 2. Evaluation of patient status with Barthel and ADL indexes

Variable	Mean	Median	Min	Max	SD
Barthel	70.75	80.00	0.00	100.00	28.93
ADL	4.57	6.00	0.00	6.00	2.10

When evaluating patients according to their gender, women were shown to be more functionally efficient in their daily activities. This difference was not statistically significant (Table 3). When analysing the efficiency of the subjects according to their age, the investigation revealed that younger people performed better in both scales. The difference was, that result was statistically significant (Table 4). Moreover, when assessing the status of patients in terms of their education, the results indicated a statistically significant relationship in the groups analysed. With higher education levels, the researchers' functional status was increasing (Table 5).

The married respondents exhibited a higher level of performance compared to the single ones, however, this was not statistically significant (Table 6).

When analysing the efficiency of the respondents according to their place of residence, it was found that people leaving in the urban areas were characterized by better results on both scales. Nevertheless, there was no statistically significant difference in this regard (Table 7).

Table 3. Evaluation of patients and their gender

Index	Women		Men		Statistical analysis	
	Mean	SD	Mean	SD	t	p
Barthel	73.00	25.56	67.85	31.97	1.054	0.293
ADL	4.84	1.88	4.17	2.27	1.689	0.093

t — t-Student test

Table 4. Evaluation of patients and their age

Index	65–74 years		75–90 years		Statistical analysis	
	Mean	SD	Mean	SD	t	p
Barthel	79.55	27.10	57.93	26.88	4.178	0.000
ADL	5.04	1.87	3.73	2.20	3.387	0.000

t — t-Student test

Table 5. Evaluation of patients and their educational status

Index	Primary		Secondary education		Tertiary education		Statistical analysis	
	Mean	SD	Mean	SD	Mean	SD	F	p
Barthel	60.85	31.89	73.65	24.72	78.38	26.96	4.297	0.015
ADL	3.97	2.33	4.75	1.79	4.90	2.07	2.187	0.011

F — analysis of variance

Table 6. Evaluation of patients and their marital status

Index	Married		Single		Statistical analysis	
	Mean	SD	Mean	SD	Z	p
Barthel	72.53	29.30	67.00	28.22	-1.206	0.227
ADL	4.65	2.10	4.23	2.11	-1.431	0.152

Z — Mann-Whitney U test

Table 7. Evaluation of patients and their place of residence

Index	Urban areas		Rural areas		Statistical analysis	
	Mean	SD	Mean	SD	t	p
Barthel	71.95	26.40	69.18	32.15	0.502	0.616
ADL	4.70	2.02	4.26	2.19	1.096	0.275

t — t-Student test

Discussion

The basic element in the functioning of the elderly patients is to maintain independence in the physical fitness. Functional efficiency deteriorates over the years and with progressing aging processes. Older people with each passing year have more and more difficulties to perform the activities of daily life. This is due to socio-demographic and health factors [9].

In the case of the elderlies, the degree of efficiency depends on the occurrence of diseases, their course, lifestyle and environmental factors. Older people with disabilities are a group of patients requiring special care from nurses. Recognition of care deficits should be based on the assessment concerning the functional status of the elderly [10–12].

Our study has shown that patients exhibited moderate functional impairment (Barthel 70.75 scale mean score). Worse results were obtained in the research by Jucha [13]. His study included 108 neurological patients with a mean Barthel score of 59.8. On the other hand, Lewko et al. [14] reported better results, and in their studies patients achieved according to the Barthel score 80.3. Additionally, studies conducted in geriatric departments [15] demonstrate better results — the average score obtained by employing the Barthel index among respondents was 89.2, which means that patients were predominantly functional in performing basic life-skills. Research by Borowicz and Wieczorowska-Tobis [16], performed among the elderly group in rehabilitation clinics, presented even better results on the Barthel index. Examined group of respondents was characterized by a better level of functionality. They obtained 90.8 points according to the Barthel Index, what is more, almost half of those patients obtained the maximum number of points.

In our study, the majority of respondents achieved high-level of functional efficiency according to ADL scale. Similar results were obtained in the study by Rybka et al. [9] where in the group of 100 hospitalized elderly patients the ADL score was 4.77.

Our findings demonstrate the improved efficiency of women compared with men, although the difference was not a statistically significant one. Correspondingly, Bartoszek et al. [17] found that women exhibited higher-level of functional efficiency. Dissimilar results were obtained in the study by Juch [13], where gender differentiated the degree of effectiveness in respondents, and the men exhibited a higher-level of functional efficiency.

Our study found that age influenced the degree of functional efficiency, i.e. functional efficiency decreases with age. Research by Lewko et al. [14] confirmed those results; on the basis of the Barthel index, there was no "severe" condition among the group of 65–70 years old, while the age group 90+ in category III had 17.00% of respondents. Correspondingly, the research of other authors confirm the relationship between age and functional fitness of older people [9,13,17,18].

Moreover, own studies did not find any relationship between the marital status and the performance level of the respondents; both groups had a similar level of points according to the Barthel index. Comparable results were also obtained in the studies by Bartoszek et al. [17], where the single respondents and the ones in relationships had the same level according to the Barthel index.

Rybka et al. [9] in their research established that the place of residence significantly influenced the functional efficiency of the elderly; better functioning characterised seniors from the urban areas. In our study, people living in the city also achieved better results, nonetheless, this was not a statistically significant relationship. Concomitant results with ours were also obtained by other authors [13,17].

All in all, aging is an inevitable process, and life expectancy is determined not only by biological factors, but also by environmental factors and lifestyle. Assessing the autonomy of the elderly is a multidirectional process, thus it is necessary to implement it with standardized tools in order to evaluate its progression as objectively as possible.

Conclusions

1. The study group of elderly patients in neurological departments exhibited moderate functional impairment.
2. Age significantly differentiated the functional efficiency of the examined patients.
3. Education influences the degree of independence in case of neurological patients.

Implications for Nursing Practice

The practical application of nursing systematic assessment concerning geriatric patient status allows for continuous monitoring of their functional efficiency. This workflow enables early detection of irregularities and an optimization of nursing care.

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