

Geriatric assessment of patients hospitalised in internal medicine units

Ocena geriatryczna pacjentów hospitalizowanych w oddziałach internistycznych

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Abstract

Introduction. Comprehensive geriatric assessment allows for the determination of the functional capacity in aging individuals, i.e. how past and present diseases affect the functioning of an individual. Thanks to this type of assessment, there is a strong possibility to detect problems which are not diagnosed by means of conventional medical diagnostics. **Objective.** The aim of the study was to assess the condition of elderly patients hospitalised in internal medicine units. **Material and methods.** The study was performed on the cohort of 144 elderly patients hospitalised in internal disease units in the Lublin and Podkarpackie voivodeships. They were assessed by means of the NOSGER scale. **Outcomes.** The average result of the NOSGER scale assessment for the entire group of patients was at 66.10 ± 18.93 points. The patients examined functioned best in the area of memory (7.41 ± 3.74 p) and the disturbing behaviour (7.64 ± 3.17 p). Basic activities of daily living (IADL) reached the average level of 10.38 ± 4.57 p, whereas the mood dimension was on average at 11.73 ± 3.36 p. The greatest functional deficits were found in the social behaviour dimension (14.91 ± 3.85 p) and instrumental activities of daily living (14.02 ± 4.18 points). **Conclusions.** The test group of elderly patients hospitalised in internal medicine units demonstrated a fairly good functional capacity. Greatest deficits were found in respect of the social behaviour and instrumental activities of daily living. Age and education proved to be significant factors determining the functioning of the elderly group examined. (Gerontol Pol 2018; 26; 100-105)

Key words: geriatric assessment, elderly, internal diseases unit, NOSGER scale

Streszczenie

Wstęp. Kompleksowa ocena geriatryczna pozwala na określenie potencjału sprawnościowego osób starszych. Taka ocena pozwala na określenie funkcjonalnych skutków przebytych i aktualnych schorzeń oraz daje największe szanse na wykrywanie problemów pacjenta, które nie są rozpoznawane w konwencjonalnej diagnostyce medycznej. **Cel.** Celem badań była ocena stanu pacjentów w podeszłym wieku przebywających w oddziałach internistycznych. **Materiał i metoda.** Badania przeprowadzono w grupie 144 pacjentów w podeszłym wieku hospitalizowanych w oddziałach chorób wewnętrznych województwa lubelskiego i podkarpackiego. Do oceny badanych użyto skali NOSGER. **Wyniki.** Uzyskany wynik oceny skalą NOSGER dla całej badanej grupy był na poziomie średniej 66.10 ± 18.93 pkt. Najlepiej badani pacjenci funkcjonowali w zakresie pamięci (7.41 ± 3.74 pkt) oraz w zakresie zachowań zaktócających (7.64 ± 3.17 pkt). Obszar aktywności codziennego życia oceniono na poziomie średniej 10.38 ± 4.57 pkt, a nastoje/emocje na poziomie 11.73 ± 3.36 pkt. Największe deficyty sprawności stwierdzono w zakresie zachowań społecznych (14.91 ± 3.85 pkt) i instrumentalnych aktywności codziennego życia (14.02 ± 4.18 pkt). **Wnioski.** Badana grupa pacjentów w podeszłym wieku hospitalizowani w oddziałach internistycznych wykazywała dość dobrą sprawność funkcjonalną. Największe deficyty sprawności stwierdzono w zakresie zachowań społecznych i instrumentalnych aktywności codziennego życia. Wiek oraz poziom wykształcenia istotnie różnicowały sprawność funkcjonalną badanej grupy osób starszych. (Gerontol Pol 2018; 26; 100-105)

Słowa kluczowe: ocena geriatryczna, osoby starsze, oddział chorób wewnętrznych, skala NOSGER

Introduction

Comprehensive geriatric assessment allows for the determination of the functional capacity in aging individuals, i.e. how past and present diseases affect the functioning of an individual. Thanks to this assessment, there is a strong possibility to detect problems which are not diagnosed by means of conventional medical diagnostics. With problems identified, it is possible to implement appropriate treatment and rehabilitation, and thus improve the functioning of senior patients [1].

Beside the classic subjective and objective examination, comprehensive geriatric assessment invariably encompasses an analysis of patient's functional capacity in terms of basic and complex vital functions, as well as their psychological functions, the risk of falling and malnutrition [2].

Comprehensive geriatric assessment establishes an exchange of information about geriatric patients between the therapeutic team and other health providers. Moreover, it allows for the combination of services provided by doctors, nurses, physiotherapists, psychologists, and social workers [3].

Objective

The aim of the study was to assess the condition of elderly patients hospitalised in internal medicine units.

Material and method

The study was performed on a group of 144 elderly patients hospitalised in internal disease units in the Lublin and Podkarpackie voivodeships. Subjects participated willingly in the research study. The authors also obtained the facility's management consent to perform research on its premises.

The age of the patients ranged from 65 to 89 years, the majority of them being male (56.50%). The cohort is characterised in detail in Table I.

Research material was collected by means of the NOSGER scale (Nurses' Observation Scale for Geriatric Patients). This tool allows for a biological, psychical, mental, and social assessment of elderly individuals' condition. It contains 30 questions from 6 areas (dimensions): memory; instrumental activities of daily living (IADL); (basic) activities of daily living (ADL); mood and emotions; social behavior; and destructive/disturbing behavior. Each area is assessed on a numerical scale from 1 to 5. The patient can obtain the minimum of 30

Table I. Characteristics of the research pool

Variable	%	
Gender	Woman	53.50
	Man	56.50
Age	65-69	40.20
	70-79	29.70
	80-89	30.10
Relationship status	Single	45.10
	In a relationship	56.90
Education	Elementary	29.90
	Vocational	22.90
	Secondary	32.60
	Higher	14.60
Place of residence	Urban area	63.90
	Rural area	36.10
Mode of hospitalisation	Scheduled	29.90
	Emergency	70.10

and the maximum of 150 points. The higher the number of points, the worse the patient's condition [4-8].

The results obtained were analysed statistically. The database and the surveys were based on Statistica Software 9.1 (StatSoft, Poland). The significance level indicating the presence of statistically significant differences or correlations was adopted at $p < 0.05$.

Outcomes

The average result of the NOSGER scale assessment for the entire group of patients was at 66.10 ± 18.93 points. The patients examined functioned best in the area of memory (7.41 ± 3.74 p) and the disturbing behaviour (7.64 ± 3.17 p). Basic activities of daily living (ADL) reached the average level of 10.38 ± 4.57 p, whereas the mood dimension was on average at 11.73 ± 3.36 p. The greatest fitness deficits were found in the social behaviour dimension (14.91 ± 3.85 p) and instrumental activities of daily living (14.02 ± 4.18 points).

Table II presents the results of patient assessment by means of the NOSGER scale in relation to socio-demographic variables. It appears that women demonstrated better functional capacity both in the general assessment (65.69 ± 18.05) and in respect of particular component areas of the scale (with the exception of the mood/emotions dimension). The analysis does not, however, reveal any statically significant differences between the two gender groups.

The best results were found for persons aged 65-74 years (55.46 ± 13.08), while the lowest were obtained by persons aged 80-89 years (81.31 ± 17.45). The dif-

Table II. Sociodemographic variables and NOSGER scale evaluation (mean \pm standard deviation)

Variable	NOSGER	ADL	IADL	Mood	Disturbing behaviour	Social behaviour	Memory	
Gender	Woman	65.69 \pm 18.05	10.19 \pm 4.39	13.94 \pm 4.09	11.84 \pm 3.43	7.46 \pm 3.02	14.85 \pm 3.63	7.37 \pm 3.74
	Man	66.51 \pm 20.02	10.58 \pm 4.77	14.08 \pm 4.29	11.59 \pm 3.29	7.83 \pm 3.33	14.95 \pm 4.09	7.44 \pm 3.77
Age	Statistical analysis	$t = -0.250.7968$ $p = 0.797$	$t = -0.506$ $p = 0.613$	$t = -0.202$ $p = 0.840$	$t = 0.439$ $p = 0.661$	$t = -0.695$ $p = 0.487$	$t = -0.152$ $p = 0.879$	$t = -0.113$ $p = 0.909$
	65-74	55.46 \pm 13.08	8.46 \pm 3.24	11.72 \pm 3.73	10.37 \pm 3.24	6.48 \pm 2.34	13.36 \pm 3.51	5.05 \pm 0.22
	70-79	64.73 \pm 16.78	9.85 \pm 4.06	14.00 \pm 3.25	11.57 \pm 3.25	7.64 \pm 3.37	15.07 \pm 3.76	6.59 \pm 2.77
Relationship status	80-89	81.31 \pm 17.45	13.38 \pm 5.01	17.04 \pm 3.59	13.65 \pm 2.67	9.15 \pm 3.31	16.77 \pm 3.53	11.29 \pm 3.94
	Statistical analysis	$F = 34.469$ $p = 0.000$	$F = 18.573$ $p = 0.000$	$F = 27.974$ $p = 0.000$	$F = 14.217$ $p = 0.000$	$F = 10.091$ $p = 0.000$	$F = 11.327$ $p = 0.000$	$F = 72.396$ $p = 0.000$
	Single	71.74 \pm 19.66	11.04 \pm 5.04	14.75 \pm 4.32	12.77 \pm 3.45	8.22 \pm 3.20	16.25 \pm 3.90	8.67 \pm 4.20
Education	In a relationship	61.78 \pm 17.26	9.86 \pm 4.12	13.45 \pm 3.99	10.93 \pm 3.07	7.19 \pm 3.08	13.87 \pm 3.48	6.45 \pm 3.03
	Statistical analysis	$t = 3.228$ $p = 0.001$	$t = 1.546$ $p = 0.124$	$t = 1.875$ $p = 0.062$	$t = 3.362$ $p = 0.000$	$t = 1.954$ $p = 0.052$	$t = 3.851$ $p = 0.001$	$t = 3.686$ $p = 0.000$
	Elementary	76.95 \pm 20.71	13.39 \pm 5.29	16.11 \pm 4.21	12.62 \pm 2.87	9.09 \pm 3.51	16.32 \pm 3.80	9.39 \pm 4.36
Place of residence	Vocational	61.29 \pm 19.55	9.57 \pm 4.09	12.60 \pm 3.69	11.15 \pm 3.44	6.69 \pm 2.66	14.12 \pm 3.90	7.00 \pm 3.67
	Secondary	63.21 \pm 16.00	9.25 \pm 3.83	13.63 \pm 3.62	11.57 \pm 3.41	7.42 \pm 3.03	14.46 \pm 3.41	6.85 \pm 3.40
	Higher	59.00 \pm 13.91	8.54 \pm 2.61	12.56 \pm 4.52	11.14 \pm 3.83	6.61 \pm 2.41	14.11 \pm 4.21	5.87 \pm 2.04
Mode of hospitalisation	Statistical analysis	$F = 8.135$ $p = 0.000$	$F = 11.154$ $p = 0.000$	$F = 6.260$ $p = 0.000$	$F = 1.619$ $p = 0.187$	$F = 5.227$ $p = 0.001$	$F = 2.975$ $p = 0.033$	$F = 7.118$ $p = 0.000$
	Urban area	66.90 \pm 19.31	10.53 \pm 4.67	14.06 \pm 4.26	11.73 \pm 3.37	7.73 \pm 3.21	15.14 \pm 3.88	7.68 \pm 3.93
	Rural area	64.59 \pm 18.31	10.09 \pm 4.38	13.92 \pm 4.05	11.71 \pm 3.36	7.46 \pm 3.09	14.48 \pm 3.78	6.92 \pm 3.36
Mode of hospitalisation	Statistical analysis	$Z = 0.678$ $p = 0.497$	$Z = 0.584$ $p = 0.558$	$Z = 0.123$ $p = 0.902$	$Z = 0.142$ $p = 0.886$	$Z = 0.650$ $p = 0.515$	$Z = 1.187$ $p = 0.235$	$Z = 1.095$ $p = 0.273$
	Scheduled	64.02 \pm 17.37	9.81 \pm 4.14	13.93 \pm 4.41	11.37 \pm 3.55	7.23 \pm 2.73	14.65 \pm 3.49	7.02 \pm 3.24
	Emergency	66.94 \pm 19.57	10.61 \pm 4.73	14.04 \pm 4.09	11.88 \pm 3.27	7.81 \pm 3.32	15.00 \pm 3.99	7.57 \pm 3.93
Mode of hospitalisation	Statistical analysis	$Z = 0.665$ $p = 0.505$	$Z = 0.925$ $p = 0.354$	$Z = 0.168$ $p = 0.866$	$Z = 1.006$ $p = 0.313$	$Z = 0.586$ $p = 0.557$	$Z = 0.365$ $p = 0.714$	$Z = 0.396$ $p = 0.691$

Z – Mann-Whitney U test; H – Kruskal-Wallis test; t-Student's t-test; F – analysis of variance

ferences in the assessment of individual age groups were statistically significant.

The analysis of the NOSGER scale assessment results under consideration of the patients' relationship status showed that persons in a relationship functioned better in all dimensions investigated. The general result was on average at 61.78 ± 17.26 . This difference was statistically significant in terms of the general NOSGER assessment as well and in the areas of mood/emotions, social behaviour, and memory.

The study also analysed the performance of senior citizens depending on their education. Patients with higher education exhibited their best functional capacity as to physical, mental, and social functioning (avg. 59.00 ± 13.91). They also obtained best results in the assessment of particular areas. A statistical analysis revealed a significant relation between patients' education and their functional capacity assessment in all the areas examined (with the exception of the mood/emotions dimension).

Another subject for analysis was the patients' functional capacity depending on their place of residence. Persons living in rural areas proved to achieve higher overall results on the NOSGER scale (64.59 ± 18.31), as well as in its particular dimensions, yet no significant difference among the groups was found in the statistical analysis of this category.

The study also examined patients depending on their mode of hospitalisation. Patients admitted to hospital on a scheduled basis showed better functional capacity. The general assessment in this group gave results at the average level of 64.02 ± 17.37 . Patients admitted to hospital through the emergency mode obtained an average of 66.94 ± 19.57 points in the assessment. The first group had better results than the latter in all individual dimensions as well. However, statistical analysis showed no relation between the arrival mode and patients' functional capacity.

Discussion

The basic element of proper functioning among the elderly is to maintain independence, mainly in terms of physical fitness. With age and with changes in the body occurring in the course of aging, functional capacity deteriorates. As they age, elderly persons find it more and more difficult to cope with basic and complex activities of daily living [9].

The system of hospital care in Poland suffers from a shortage of geriatric units. Lack of stationary geriatric care facilities hampers comprehensive diagnostics and treatment of the elderly. In most cases, older people who need hospitalisation are admitted to internal disease

wards. These units are too often used as an alternative to geriatric units.

Functional capacity assessment in elderly persons can be performed by means of various standardised tools, which nevertheless only evaluate selected aspects of an individual's functioning. NOSGER scale, on the other hand, assesses the mental, physical, and social condition of an elderly person.

Patients examined in this study demonstrated a relatively good physical, mental and social functioning capacity (66.10 p on average). The tests conducted in 2013, also in internal medicine wards in Lublin hospitals, gave even better results. Patients assessed by means of the NOSGER scale obtained 57.23 points on average [10]. Research carried out by Głowacka et al. [11] in patients' home environment revealed that the average level of functional capacity amounted to 57.65 points. Studies conducted among older people living in rural areas of the Lublin voivodship produced an average result of 54.75 points [12]. The analysis of Polish studies available in the literature where the NOSGER scale was employed for the assessment of older people showed that the best functional capacity was reported among persons examined in their home environment in eastern Poland. The authors of that research reviewed the functional capacity of 132 senior citizens and the average result was 54.12 [13]. In a study carried out by Luttenberger et al. [14] in elderly patients with dementia living in residential nursing care establishments in Bavaria, average patient functional capacity was determined at 77.70 points. Worse results were obtained for persons residing in nursing homes. Research conducted by Kościelna and Kołat [15] showed that senior citizens residing in those social care facilities obtained an average assessment result of 82.47 points. A characteristic feature of all the aforementioned study results is the fact that the patients examined functioned worst in respect of their instrumental activities of daily living and social behaviour. Authors' own research confirms these findings. It is only a study of senior citizens with dementia [14] which demonstrated worse results also in the memory dimension.

The NOSGER assessment performed within the study conducted showed women to achieve slightly better results in the general assessment as well as in the six individual areas analysed. Men outdid women only in the mood dimension. At the same time, it must be noted that the results of the study conducted by Kościelna and Kołat [15] are completely different. Men exhibited a better functional capacity in their research, with women functioning slightly better only in the areas of memory and basic activities of daily living. Głowacka et al. [11] also reported women to demonstrate worse capacity than

men (with the exception of the dimensions of mood/emotions and disturbing behaviour).

Authors' own study found there is a relationship between the age and functional capacity of patients. This difference was significant both in the general assessment and in each of the areas of the NOSGER scale. These results are confirmed by the research conducted by Głowacka et al. [11], who also obtained strongly statistically significant results.

The outcomes of authors' own research have shown that functional capacity depends on the patients' education. Persons with elementary education demonstrated greatest functional deficits. The impact of education on the degree of functional capacity in older people is confirmed by the results of other studies [10,11].

The assessment of patients in relation to their place of residence found that residents of rural areas exhibited better functional capacity. Although this difference was not statistically significant, patients from rural areas obtained better results both in the general assessment on the NOSGER scale and in its specific dimensions. These results are consistent with the results of the study conducted by Wysokiński et al. [10], where rural residents also functioned better. However, Głowacka et al. [11]

obtained different results in their research and concluded that city dwellers did better in the general assessment of their functioning.

In their own study, authors found that patients admitted to hospital on a scheduled basis were more independent in contrast to emergency patients. This may stem from the fact that in the case of emergency mode of hospitalisation the patient is often in a very poor health condition. They may experience a greater discomfort caused by previously diagnosed diseases as well as severe symptoms of new conditions.

Conclusions

The test group of elderly patients hospitalised in internal medicine units demonstrated a fairly good functional capacity. The greatest deficits were found in respect of the social behaviour and instrumental activities of daily living. Age and education proved to be significant factors determining the functioning of the elderly group examined.

Conflict of interest

None

References

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