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Analysis of psychiatric consultations in the department of neurology and stroke unit: diagnosis and therapy

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Summary

Aim. The aim of this study was to analyze psychiatric consultations of patients hospitalized in the Department of Neurology and Stroke Unit (DN/SU) of University Clinical Center in Katowice from 2017 to 2018.

Method. A retrospective analysis of psychiatric consultations, psychiatric diagnoses (according to the ICD-10) and treatment recommendations was done.

Results. 719 psychiatric consultations were performed in all hospital departments in the analyzed period. 488 (67.87%) consultations were conducted in the Department of Neurology and Stroke Unit. Most patients who required psychiatric consultations were diagnosed with Huntington's disease (n = 25; 37.31%), Parkinson's disease (n = 60; 23.9%) and epilepsy (n = 40; 22.73%). The most common psychiatric diagnoses included organic mental disorders (n = 229; 55.85%), particularly organic mood disorders (n = 73; 14.96%) and organic anxiety disorders (n = 32; 6.56%) whereas in the case of vascular diseases the most common diagnoses included disturbances of consciousness associated with delirium (n = 30; 40.54%). The majority of consultations (n = 388; 79.51%) resulted in the onset or modification of pharmacological treatment. The most frequently prescribed drugs were: neuroleptics (n = 174; 35.66%), mostly atypical (n = 152; 87,36%), and antidepressants (n = 230; 47.13%), mostly SSRIs (n = 216; 93.91%). In patients > 60 years of age organic disorders were more prevalent (n = 179; 66.30%

vs. n = 49; 35.0%) and neuroleptics were more frequently prescribed (n = 131; 42.12% vs. n = 44; 24.86%) compared to patients < 60 years.

Conclusions. Patients in the department of neurology and stroke unit underwent a psychiatric consultation most frequently. Optimizing the care of a neurological patient is related to close cooperation of a neurologist and a psychiatrist, as well as developing and updating common positions for the management of selected disease entities.

Key words: neurology, psychiatry, comorbidity

Introduction

According to the data published by the National Development Council, 23.4% of Polish population is affected by psychiatric disorders [1]. This percentage is significantly higher in patients with comorbid neurological diseases and ranges from 39 to 64% [2].

Considering the increasing number of individuals with neurological disorders whose integral symptoms include neuropsychiatric disorders, the number of psychiatric consultations in neurological departments is large and may also increase. In the departments of neurology and stroke unit (DN/SU) patients that usually require psychiatric consultations are those with diseases that permanently damage neurons and produce both somatic and mental symptoms whose treatment is related to an interdisciplinary approach.

Stroke patients are exposed to a number of complications (such as neuropsychiatric disorders) in acute and chronic phases of the disease. Post-stroke depression (PSD) occurs in 20–65% of stroke patients [3] Acute confusional state (delirium) is another important neuropsychiatric problem in vascular diseases of the CNS. It is present in the acute phase of stroke (10 to 48%) [4]. The occurrence of delirium in the acute phase of the disease is associated with higher mortality, increased risk of long-term stay in healthcare centers [5], worse patient outcome assessed by the Mini Mental State Examination (MMSE) [6] and a higher risk of dementia in the future [7]. Cerebrovascular accident patients also report anxiety disorders that occur in 18–25% of cases [8], fatigue syndrome (57%) [9] and apathy (34.6%) [10]. The incidence varies depending on the time elapsed after the stroke.

Well-described neuropsychiatric disorders in Parkinson's disease (PD) include depression, anhedonia, anxiety, psychotic symptoms (hallucinations and delusions), impulse control disorders, and sleep disorders. Of these, sleep disorders are particularly common and occur in about 60–90% of PD patients [11, 12]. Depression in PD is mostly mild and affects 14–35% of patients. It can occur at any stage of the disease. According to some authors, it precedes the occurrence of motor symptoms in approximately 25% of cases. Isolated anxiety disorders can affect 34% of patients and are exacerbated during the OFF phase. Anxiety can cause social isolation of patients

that, in turn, aggravates other non-motor symptoms of the disease. Psychotic disorders can affect even 30% of patients and occur as visual and auditory hallucinations or an unpleasant feeling of someone's presence [13].

In an ageing society, cognitive disorders are an increasingly important issue. It is estimated that dementia affects about 10% of patients over 65 years of age, while mild cognitive impairment (MCI) may affect about 18% of this population [14].

Another diagnostic problem is related to a frequent co-occurrence of cognitive impairment and behavioral and psychological symptoms of dementia (BPSD). Depression, apathy, anxiety, and irritability are the most prevalent and may affect between 35 and 85% of patients depending on the severity of the underlying disease [13]. In MCI, depression affects 26–63% of patients whereas in dementia 20–60% [14].

In Huntington's disease (HD), behavioral changes and cognitive disorders often precede the occurrence of motor disorders [16, 17]. Patients develop significant personality disorders, psychotic disorders, hostility, anxiety, and obsessive-compulsive disorders. Affective disorders are more prevalent in patients with HD compared to the general population [11]. It is also worth emphasizing the increased risk of suicide among these patients and the fact that both suicidal thoughts and behaviors already occur in the early stages of the disease [18].

Epilepsy coexists with many mental disorders such as mental retardation, dementia and psychotic, depressive and anxiety disorders as well as organic personality disorders. According to various studies, the coexistence of epilepsy and depressive disorders is estimated at 20–75%. [11], risk of suicide is also higher in this population [11]. Treatment of patients with psychogenic nonepileptic seizures (PNES) is a common though difficult issue related to the cooperation between neurologists and psychiatrists. It is estimated that among patients diagnosed with epilepsy, 5–20% have PNES [19]. In these cases misdiagnosis is associated with unnecessary drug administration, costs of unnecessary hospitalization and the delay in referring patients to appropriate psychiatric treatment, which is the most important issue.

Material and methods

A retrospective analysis of medical documentation of 488 psychiatric consultations was carried out in DN/SU of University Clinical Center in Katowice from 1st January 2017 to 31st July 2018. The analysis was performed in terms of psychiatric diagnoses in accordance with the ICD-10 classification and the consultant's recommendations with consideration given to gender, age and neurological diseases. Consultations were conducted by one psychiatrist.

Statistical analysis was performed using STATISTICA 12, Stat Soft Poland and R 3.3.2, GNU General Public License. Measurable data were expressed as mean

± standard deviation (M±SD), while the significance of differences in mean values in two independent groups was tested by Welch's *t*-test. Percentage values were used in the presentation of nominal data, while the two proportions test was used to compare them.

Results

Of all the departments at the University Clinical Hospital in Katowice, DN/SU patients were most frequently consulted (67.87% of all consultations). During 18 months, 488 consultations were conducted. 293 women aged 18–91 years (mean age 59.94 ± 17.77 years) and 195 men aged 18–90 years (mean age 60.76 ± 15.64 years) were consulted.

During psychiatric consultations, diagnoses were made in the majority of patients (n = 376; 77.05%). Organic mental disorders (n = 229; 55.85%) were predominant, of which organic mood disorders accounted for the largest subgroup (n = 73; 31.88%). Mood (affective) disorders (F30–F39) (n = 31; 7.56% vs. n = 25; 9.58%; p = 0.004) and stress-related and somatoform disorders (F40–F48) (n = 84; 20.49% vs. n = 59; 22.61%; p = 0.014) were diagnosed significantly more often in women than in men. In the group of patients below 60 years of age, mood disorders (F30–F39) (n = 17; 12.14% vs. n = 14; 5.19%; p = 0.009) and disorders of adult personality and behavior (F60–F69) (n = 11; 7.86% vs. n = 1; 0.37%; p <0.0001) were significantly more prevalent. However, in patients over 60 years of age, organic psychiatric disorders, including symptomatic syndromes were significantly more prevalent (n = 179; 66.30% vs. n = 49; 35.0%; p <0.0001) followed by neurotic, stress-related and somatoform disorders (n = 44; 16.30% vs. n = 40; 28.57%; p = 0.011) (Table 1).

Table 1. **Diagnoses according to ICD-10 with consideration given to age and gender of patients. p – Welch's t-test.**

ICD10	Total		Women		Men		p	Patients < 60 years of age		Patients > 60 years of age		p
	n	%	n	%	n	%		n	%	n	%	
F00–F09	229	55.85	134	51.34	95	63.76	0.259	49	35.00	179	66.30	<0.0001
F10–F19	42	10.24	25	9.58	17	11.41	0.471	20	14.29	22	8.15	0.063
F20–F29	8	1.95	6	2.30	2	1.34	0.256	2	1.43	7	2.59	0.169
F30–F39	31	7.56	25	9.58	6	4.03	0.004	17	12.14	14	5.19	0.009
F40–F48	84	20.49	59	22.61	25	16.78	0.014	40	28.57	44	16.30	0.011
F50–F59	4	0.98	3	1.15	1	0.67	0.256	1	0.71	3	1.11	0.308

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F60–F69	12	2.93	9	3.45	3	2.01	0.126	11	7.86	1	0.37	<0.0001
Total:	488	100	293	60.04	195	39.96		177	36.27	311	63.73	

F00–F09 — Organic, including symptomatic, mental disorders
F10–F19 — Mental and behavioral disorders due to psychoactive substance use
F20–F29 — Schizophrenia, schizotypal and delusional disorders
F30–F39 — Mood (affective) disorders
F40-F48 — Neurotic, stress-related and somatoform disorders
F50–F59 — Behavioral syndromes associated with physiological disturbances and physical factors
F60–F69 — Disorders of adult personality and behavior

The analysis of the psychiatric recommendations shows that in more than 50% of cases, i.e., 246 patients (50.41%) drug therapy was recommended. Treatment was modified in another one-third of patients, i.e., 142 (29.10%). Neuroleptics were most often prescribed (n = 174; 35.66%), particularly atypical neuroleptics (n = 152; 87.36%). These agents and antidepressants were significantly more often prescribed for female patients whereas hypnotic drugs were mostly administered to male patients. During antidepressant treatment, selective serotonin reuptake inhibitors (SSRIs) were most commonly administered to women (n = 216; 93.91%).

Psychiatric re-consultations accounted for only 2.46% of the total number of consultations. Hospitalization in the psychiatric department was not common (n = 29; 5.94%). Of this group, 11 patients were diagnosed with disorders due to the abuse of psychoactive substances, 7 – with organic disorders and 5 – with psychotic disorders. Hospitalization in the department of psychiatry was more often recommended for patients diagnosed with epilepsy – 8 (20%) subjects out of 40. Hospitalization in the department of psychiatry was significantly more often recommended for patients <60 years of age (n = 20; 11.30% vs. n = 9; 2.89%). However, treatment was significantly more commonly administered to patients older than 60 years of age, and neuroleptics, SSRIs and hypnotic drugs were significantly more common in this group of patients. Detailed data are presented in Table 2.

Table 2. **Psychiatric recommendations according to age and gender of patients**

	Total		Women		Men		p	Patients < 60 years of age		Patients > 60 years of age		p
	n	%	n	%	n	%		n	%	n	%	
Recommended psychiatric hospitalization	29	5.94	19	6.48	10	5.13	0.263	20	11.30	9	2.89	<0.0001

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Inclusion of treatment	246	50.41	150	51.19	96	49.23	0.335	74	41.81	172	55.31	0.002
Modification of treatment	142	29.10	88	30.03	54	27.69	0.288	50	28.25	92	29.58	0.392
Neuroleptics:	174	35.66	93	31.74	81	41.54	0.014	44	24.86	131	42.12	<0.0001
Typical	25	14.37	11	11.83	14	17.28	0.157	5	11.36	21	16.03	0.102
Atypical	152	87.36	82	88.17	70	89.42	0.365	40	90.91	112	85.50	0.157
Other	5	2.87	3	3.23	2	2.47	0.382	2	4.55	3	2.29	0.257
Antidepressants:	230	47.13	149	50.85	81	41.54	0.021	85	48.02	144	46.30	0.361
SSRIs	216	93.91	141	94.62	75	92.59	0.278	75	88.24	140	97.22	0.009
TCAs	36	15.65	24	16.11	12	14.81	0.410	11	12.94	24	16.67	0.219
Other	17	7.39	9	6.04	8	9.88	0.472	8	9.41	9	6.25	0.201
Hypnotic drugs	6	1.23	6	2.05	0	0.00	0.007	0	0.00	6	1.93	0.007
Benzodiazepines	19	3.89	12	4.10	7	3.59	0.387	5	2.82	14	4.50	0.167
Hydroxyzine	18	3.69	8	2.73	10	5.13	0.097	6	3.39	12	3.86	0.398

SSRIs – selective serotonin reuptake inhibitors; TCAs – tricyclic antidepressants.
p – Welch's t-test

Detailed data on diagnoses and psychiatric recommendations according to main diagnoses are given in Table 3.

Table 3. **Psychiatric diagnoses and recommendations according to main diagnoses**

	PD	VD	HD	MCI/AD	EPI	PD vs. VD	PD vs. HD	PD vs. MCI/AD	PD vs. EPI	VD vs. HD	VD vs. MCI/AD	VD vs. EPI	HD vs. MCI/AD	HD vs. EPI	MCI/AD vs. EPI
F0	55.0%	63.5%	48.0%	50.0%	30.0%	0.162	0.283	0.271	PD>EPI 0.006	0.095	VD>MCI/AD 0.037	VD>EPI 0.000	0.431	0.079	MCI/ AD>EPI 0.013
F1	13.3%	8.1%	0.0%	2.0%	32.5%	0.170	PD>HD 0.002	PD>MCI/AD 0.008	PD<EPI 0.016	VD>HD 0.007	VD>MCI/AD 0.040	VD<EPI 0.002	0.079	HD<EPI 0.000	MCI/ AD<EPI 0.000
F2	0.0%	1.4%	0.0%	2.9%	5.0%	0.160	-	PD<MCI/AD 0.042	0.080	0.160	0.231	0.167	HD<MCI/AD 0.042	0.080	0.299
F3	5.0%	2.7%	8.0%	5.9%	2.5%	0.251	0.316	0.405	0.255	0.186	0.211	0.474	0.363	0.186	0.163
F4	11.7%	9.5%	8.0%	16.7%	12.5%	0.342	0.300	0.186	0.451	0.412	0.078	0.316	0.100	0.280	0.261
F5	0.0%	2.7%	0.0%	0.0%	2.5%	0.079	-	-	0.162	0.079	0.079	0.474	-	0.162	0.162
F6	0.0%	0.0%	0.0%	1.0%	7.5%	-	-	0.160	PD<EPI 0.042	-	0.160	VD<EPI 0.042	0.160	HD<EPI 0.042	0.070
Recommended hospitalization	5.0%	1.4%	0.0%	1.0%	20.0%	0.124	PD>HD 0.042	0.092	PD>EPI 0.018	0.160	0.412	VD<EPI 0.003	0.160	HD<EPI 0.002	MCI/ AD<EPI 0.003
Inclusion of treatment	48.3%	66.2%	16.0%	48.0%	45.0%	PD<VD 0.019	PD>HD 0.001	0.486	0.373	VD<HD <0.0001	VD>MCI/AD 0.008	VD>EPI 0.016	HD<MCI/AD <0.0001	HD<EPI 0.005	0.374
Modification of treatment	31.7%	24.3%	60.0%	28.4%	2.5%	0.176	PD>HD 0.010	0.383	PD>EPI 0.000	VD<HD 0.001	0.169	VD>EPI <0.0001	HD>MCI/AD 0.004	HD.EPI 0.000	MCI/ AD>EPI 0.000
Neuroleptics:	23.3%	70.3%	68.0%	35.3%	25.0%	PD<VD 0.000	PD<HD 0.000	0.051	0.426	0.418	VD>MCI/AD 0.000	VD>EPI 0.000	HD>MCI/AD 0.002	HD>EPI 0.000	0.112
Typical	0.0%	32.7%	11.8%	2.8%	0.0%	PD<VD 0.000	0.082	0.162	-	VD>HD 0.026	VD>MCI/AD 0.000	VD>EPI 0.000	0.152	0.082	0.162

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Atypical	92.9%	69.2%	94.1%	100.0%	100.0%	PD>VD 0.010	0.446	0.168	0.168	VD<HD 0.003	VD<MCI/AD 0.000	VD<EPI 0.000	0.166	0.166	-
Other	7.1%	1.9%	0.0%	2.8%	0.0%	0.246	0.168	0.292	0.168	0.161	0.401	0.161	0.162	0.172	0.162
Antidepressants:	58.3%	23.0%	56.0%	53.9%	22.5%	PD>VD <0.0001	0.423	0.294	PD>EPI <0.0001	VD<HD 0.003	VD<MCI/AD <0.0001	0.477	0.427	HD>EPI 0.002	MCI/ AD>EPI <0.0001
SSRIs	97.1%	100.0%	71.4%	100.0%	88.9%	0.163	PD<HD 0.033	0.162	0.245	VD>HD 0.020	-	0.173	HD<MCI/AD 0.020	0.154	0.173
TCAs	20.0%	17.7%	0.0%	12.7%	11.1%	0.088	PD<HD 0.003	0.190	0.253	VD>HD 0.041	0.439	0.330	HD<MCI/AD 0.003	0.173	0.440
Other	11.4%	5.9%	28.6%	3.6%	0.0%	0.166	0.113	0.101	PD>EPI 0.022	0.059	0.482	0.166	HD>MCI/AD 0.036	HD>EPI 0.020	0.080
Hypnotic drugs	1.7%	5.4%	0.0%	1.0%	0.0%	0.117	0.161	0.362	0.391	0.385	0.060	0.213	0.160	0.376	0.160
Benzodiazepines	5.0%	5.4%	0.0%	0.0%	15.0%	0.458	PD<HD 0.042	PD>MCI/AD 0.042	PD<EPI 0.015	VD>HD 0.022	VD>MCI/AD 0.022	VD<EPI 0.022	-	HD<EPI 0.006	MCI/ AD<EPI 0.006
Hydroxyzine	1.7%	6.8%	4.0%	2.0%	2.5%	0.067	0.297	0.446	0.161	VD>HD 0.033	0.071	0.067	0.317	0.376	0.425

SSRIs – selective serotonin reuptake inhibitors; TCAs – tricyclic antidepressants; PD – Parkinson's disease; VD – vascular diseases; HD – Huntington's disease; MCI/AD – mild cognitive impairment/Alzheimer's disease; EPI – epilepsy

F0 — Organic, including symptomatic, mental disorders

F1 — Mental and behavioral disorders due to psychoactive substance use

F2 — Schizophrenia, schizotypal and delusional disorders

F3 — Mood (affective) disorders

F4 — Neurotic, stress-related and somatoform disorders

F5 — Behavioral syndromes associated with physiological disturbances and physical factors

F6 — Disorders of adult personality and behavior

p – Welch's t-test.

Discussion

The study showed that people with chronic neurological diseases were most frequently psychiatrically consulted. In these patients treatment of the underlying disease is currently impossible. In this group, biological factors, mental burden related to the diagnosis and the need for chronic therapy and treatment-related adverse effects were important risk factors for the development of mental disorders [11]. In this respect, patients should be regularly followed-up. Of note, a disproportionate number of psychiatric consultations was observed between the DN/SU and other hospital departments. According to literature, the percentage of similar consultations was much lower (1.4%–8.7%) [20–22]. The advisability of consultation, however, is confirmed by the fact that in the majority of patients the diagnosis was established (77%) and pharmacological therapy was started (n = 246; 50%) or modified (n = 142; 29%). A large number of psychiatric consultations in the study group resulted from the inclusion of a psychiatrist in the interdisciplinary team that can enroll PD patients for advanced treatment methods, such as deep brain stimulation (DBS), or administration of Duodopa, and can perform multidisciplinary assessment of HD patients as part of the EuroHD program. Also in these cases consultations were mostly clinically significant and resulted in the diagnosis or change in therapy.

The obtained results show a relatively small percentage of post-stroke depression compared to the results of other authors [3]. This may be due to the rapid transfer of patients to specialized rehabilitation departments (standard on day 9). Therefore patient assessment in the Stroke Unit occurs in a narrow time window of possible clinical manifestations of post-stroke mood disorders. The same fact implies a high percentage of diagnoses of post-stroke behavioral disorders due to organic causes while the diagnosis of delirium syndrome was found only in 4% of patients compared to 10–58% reported by other authors [5, 22]. Of note, the real percentage of post-stroke delirium was not reflected in the study group since the diagnosis was made not only by a psychiatrist (whose consultations are under study), but also directly by neurologists in the department. This low percentage should also be attributed to the probable underestimation of the prevalence of hypoactive delirium [23].

Additionally, further psychiatric investigation was mainly related to patients with epilepsy, which is correlated with a more complex process of establishing the differential diagnosis, e.g., in the context of the coexistence of PNES [24, 25]. In turn, necessity of therapy was the reason for further psychiatric care in patients addicted to psychoactive substances [26, 27]. Of note, in the context of BPSD, providing non-pharmacological recommendations is common in hospital settings, which certainly should be given attention since it is the standard of management in this disorder. It can be partially accounted for the use of pharmacotherapy in hospital settings where behavioral dis-

orders require rapid management within a short period of time, have a clear organic cause and short-term drug treatment is used. Nevertheless, current guidelines related to the verification and selection of (atypical) neuroleptics and antidepressants are fully implemented in patients with dementia. Depressive disorders are the second most common diagnosis next to BPSD in the group of patients with cognitive impairment and affect 25 to 63% of patients [14, 15]. They, however, constituted only 7.5% in the study group, which most likely resulted from more frequent diagnoses of different organic mood disorders according to the ICD-10 classification. Studies conducted so far also point to difficulties in differentiating cognitive disorders and depression.

Conclusions

The changing profile of patients and therapeutic options require constant cooperation between a psychiatrist and a neurologist. Such cooperation is integral and highly desirable in many aspects, which may result in proper patient management.

References

1. Information from the meeting of the Protection Section of the National Development Council, https://www.prezydent.pl/download/gfx/prezydent/pl/defaultaktualnosci/ 5526/26/1/rekomendacje_dot_zdrowia_psychicznego. pdf; 9.02.2016, 1–52.
2. Jefferies K, Owino A, Rickards H, Agrawal N. *Psychiatric disorders in patients on a neurology ward: estimate of prevalence and usefulness of screening questionnaires*. J. Neurol. Neurosurg. Psychiatry. 2007; 78(4): 414–416.
3. Wichowicz H. *Post-stroke depression – biological vs. psychological disorder*. Udar Mózgu. 2008; 10(1): 40–48.
4. Klimiec E, Dziedzic T, Kowalska K, Szyper A, Pera J, Potoczek P et al. *PROspective Observational POLish Study on post-stroke delirium (PROPOLIS): methodology of hospital-based cohort study on delirium prevalence, predictors and diagnostic tools.* BMC Neurol. 2015; 15: 94. Doi: 10.1186/s12883-015-0351-z.
5. Shi Q, Presutti R, Selchen D, Saposnik G. *Delirium in acute stroke: a systematic review and meta-analysis*. Stroke. 2012; 43(3): 645–649.
6. Henon H, Lebert F, Durieu I, Godefroy O, Lucas C, Pasquier F et al. *Confusional state in stroke: relation to preexisting dementia, patient characteristics, and outcome*. Stroke. 1999; 30(4): 773–779.
7. Van Rijsbergen MW, Oldenbeuving AW, Nieuwenhuis-Mark RE, Nys GM, Las SG, Roks G et al. *Delirium in acute stroke: a predictor of subsequent cognitive impairment? A two-year follow-up study*. J. Neurol. Sci. 2010; 306(1–2): 138–142.
8. Campbell Burton CA, Murray J, Holmes J, Astin F, Greenwood D, Knapp P. *Frequency of anxiety after stroke: a systematic review and meta-analysis of observational studies*. Int. J. Stroke. 2013; 8(7): 545–559.

9. Choi-Kwon S, Han SW, Kwon SU, Kim JS. *Poststroke fatigue: characteristics and related factors*. Cerebrovasc. Dis. 2005; 19(2): 84–90.
10. Van Dalen JW, Moll Van Charante EP, Nederkoorn PJ, Van Gool WA, Richard E. *Poststroke apathy*. Stroke. 2013; 44(3): 851–860.
11. Radzik J, Zawadzka A, Leszek J, Błaszczyk A, Chlebowska I. *Problems of depressive disorders in some neurodegenerative disease*. Psych. Pol. 2010; 7(1): 17–28.
12. Jaracz J, Jaracz K. *Zaburzenia psychiczne w chorobie Parkinsona*. Psychiatria po Dyplomie. 2014; 04.
13. Sobów T. *Psychiatric disorders coexisting with dementia – clinical relevance and principles of management*. Aktualn. Neurol. 2012; 12(4): 236–244.
14. Jerema M, Rabe-Jabłońska J. *Psychiatria podręcznik dla studentów medycyny*. Warsaw: PZWL Medical Publishing; 2013.
15. Bilikiewicz A, Matkowska-Białko D. *Zaburzenia funkcji poznawczych a depresja*. Udar Mózgu. 2004; 6(1): 27–37.
16. Wesson M, Boileau NR, Perlmutter JS, Paulsen JS, Barton SK, McCormack MK et al. *Assessment in individuals with premanifest and manifest Huntington disease*. Qual. Life Res. 2016; 25(10): 2441–2455. Doi: 10.1007/s11136-016-1386-3.
17. Paulsen JS, Long JD, Johnson HJ, Aylward EH, Ross CA, Williams JK et al. *Clinical and biomarker changes in premanifest Huntington's disease show trial feasibility: A decade of the PREDICT-HD Study*. Front Aging Neurosci. 2014; 6: 78.
18. Wesson M, Boileau NR, Perlmutter JS, Paulsen JS, Barton SK, McCormack MK et al. *Suicidal ideation assessment in individuals with premanifest and manifest Huntington's disease*. Journal of Huntington's Disease. 2018; 7: 239–249.
19. Jędrzejczak K. *Różnicowanie czołowych napadów padaczkowych i psychogennych napadów rzekomopadaczkowych*. Neurologia po Dyplomie. 2011; 6(2): 32–41.
20. Ścisło P, Badura-Brzoza K, Gorczyca P, Błachut M, Pudlo R, Piegza M et al. *Analysis of psychiatric consultations in a multidisciplinary hospital patients*. Psychiatr. Pol. 2015; 49(5): 1101–1112.
21. de Jonge P, Huyse, FJ, Herzog T, Lobo A, Malt U, Opmeer BC et al. *Pattern of neurological patients to psychiatric consultation-liaison services in 33 European hospitals*. Gen. Hosp. Psychiatry. 2001; 23(3): 152–157.
22. Maroufi M, Pedram A, Malekian A, Kianvash F, Maroufi M, Gerivani Z. *Consultation-liaison psychiatry in a general hospital*. JRMS. 2006; 11(3): 193–197.
23. Lorenzl S, Füsgen I, Noachtar S.. *Acute confusional states in the elderly – Diagnosis and Treatment*. Dtsch. Arztebl. Int. 2012; 109(21): 391–400.
24. Komasińska P, Drecka B, Starczewska M, Malendowicz-Major B, Skrzypek H, Steinborn B. *Diagnosis and semiology of psychogenic nonepileptic seizures in children and adolescents*. Nowiny Lekarskie. 2012: 81(6): 630–635.
25. Kutlubaev MA, Xu Y, Hackett ML, Stone J. *Dual diagnosis of epilepsy and psychogenic nonepileptic seizures: Systematic review and meta-analysis of frequency, correlates, and outcomes.* Epilepsy Behav. 2018; 29(89): 70–78.
26. Vallersnes OM, Dines AM, Wood DM, Yates C, Heyerdahl F, Hovda KE et al. *Psychosis associated with acute recreational drug toxicity: a European case series*. BMC Psychiatry. 2016; 18(16): 293.

27. Janhsen K, Roser P, Hoffmann K. *The problems of long-term treatment with benzodiazepines and related substances, prescribing practice, epidemiology, and the treatment of withdrawal.* Dtsch. Arztebl. Int. 2015; 112(1–2): 1–7.

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