

Epilepsy and Dependence

MÁRIA MARTINOVÉ

Special Psychiatric Clinic for Addicts, OLÚP, n. o. Predná Hora, Slovakia

Epilepsy is relatively frequent neurological condition. Its prevalence is assumed to be about 1%, and it would be interesting to see how many of these people have comorbid substance dependence disorder. The manifestation of epilepsy exhibits a seizure-like condition with typical neurological and psychological symptoms, which are induced by pathological electric discharges in brain. The population of addicts is known to have higher prevalence of seizures, found not only in alcohol abusers, but also in illicit drug users. The aim of our paper is to give an overview of the prevalence rates of this serious health condition in patients with substance dependence treated at the OLÚP NPO, Predná Hora. The author compares two groups of patients: with and without the epileptic seizures. Alcohol addicts prevailed in both groups. Each 8th treated dependent patient had at least one epileptic seizure. Nearly the same percent of dependent patients in both groups (43,6% vs. 40,9%) holds a driving license, thus they probably also drive a motor vehicle. Is there any person who would initiate withdrawal of driving license from such patients? Frequent somatic diseases in more than one half of the group with seizures (more than 62%) highlight the fact that this group of patients requires thorough and financially probably more demanding health care.

Keywords: epilepsy, dependence

Regular alcohol consumption deteriorates not only the health of human beings, but also whole social groups or entire citizen populations. Depending on the applied detection instrument, it one fourth to one third of patients in the primary practice of general physicians, as well as patients in somatic departments of hospitals have a disease that is simply a manifestation of somatic complication of alcoholism (Kolibáš and Novotný, 2007).

Alcohol consumption is considered as an etiological factor in case of many diseases including neurological diseases such as encephalopathy with diffusion brain or cerebellum atrophy, vascular brain attacks, epileptic seizures, and peripheral neuropathies (Kolibáš and Novotný, 2007).

The relationship between alcohol or psychoactive substance abuse on one side and increased prevalence of epileptic seizures on the other side is proven (Turček, 2007). The above mentioned substances contribute to the potential of the dose dependent excitation of the central nervous system by a mechanism which can result in epileptic seizures. Alcohol is the most dangerous from the point of view of epileptic seizure development, especially when

acute poisoning followed by a sudden discontinuation of abuse. Cocaine and heroine have proconvulsive activity as well. The relationship between cannabinoids and epilepsy is controversial. Psychostimulators trigger epileptic seizures mostly due to overdosing (Donáth, 2003; Kalina, 2008).

In general, up to 2/3 of patients with epileptic seizures can reach seizure-free status after proper medication. According to the clinical experience of the author, the total psychoactive substance abstinence is the second and essential condition of successful treatment of epileptic seizures.

A patient with active epilepsy who is treated by anti-seizure drugs is not allowed to drive a car in Slovakia. After a period of several seizure-free years the physician can allow him to drive a car or a motorcycle. The same practice applies to professional involvement - epileptic patients should not work during night shifts, in elevated spaces or with rotating equipment. However, epilepsy is not a reason for disability pension. Moreover, it is not a reason for a patient to omit sports. Physical exercise is recommended, with supervision of a healthy person during swimming, biking or skiing. Jogging

Table 1. Incidence of seizures in the groups

patients	N	%
with epi	193 (164m, 29w)	11.3
without epi	1509 (1226m, 283w)	88.7
total	1702	100

Table 2. Group (N=1702) with epi seizures – gender distribution

patients	N (without epi)	N (with epi)	total
women	283	29 (1.7 %)	312
men	1226	164 (9.6 %)	1390

Table 3. Primary addictive substance

diagnosis	without epi		with epi	
	n	%	n	%
F 10.2	783	69.3	172	89.1
F 19.2	223	15.4	17	8.8

or volleyball is acceptable, but diving is not suitable in case of this diagnosis. High caution is recommended for playing ice hockey or football.

OBJECTIVE

This paper analyses a group of patients dependent on psychoactive drugs who also have epileptic seizures as part of their diagnosis. The paper compares selected variables in the groups of dependent patients with and without seizures, to support the hypothesis that there is no significant difference in the investigated parameters of life quality in dependent patients with and without epileptic seizures.

The investigation period started in 2004 and stopped in June 2006, and involved 1702 dependent patients in a traditional 3 month clinical abuse treatment in OLÚP, n. o.

METHODS AND RESULTS

I. Analysis of the group of 1702 patients showed that 11.3% (n=193) of them arrived for treatment with already diagnosed 1 or more epileptic seizures (only a small portion of patients experienced the first seizure in our clinic). (*Table 1*)

Every 8th treated dependent patient experiences one or more epileptic seizures.

From the gender difference point of view, in the whole group (n=1702) the prevalence of seizures was significantly lower in women (total n=312 women, n=29 with epi, i.e. 1.7%). In the male group (total n=1390 men, n=164 with epi) prevalence was 9.6%. (*Table 2*)

Alcohol abusers accounted for 69.3% (n=783) of the whole group (n=1702), abusers of other psychotropic substances, mostly opiates, reached 15.4% (n=223).

Table 4. Primary non - alcohol drug and epi seizures

drug	n	%
heroin	12	70.6
pervitine	3	17.6
marihuana	2	11.8

Table 5. First usage and average duration of dependence in the groups with and without seizures

Investigated parameter	without epi	with epi
Average age of first usage of addict. substance	17.8 yr.	16.7 yr.
Average dependence duration	9.1 yr.	11 yr.

Table 6. Comparison of education in both groups

Education	without epi		with epi	
	N	%	N	%
Basic	185	14.2	17	8.8
Special high school, no graduation	717	40.6	93	48.2
High school, graduation	426	32.5	48	24.9
University degree	181	12.0	19	9.8
Non data	-	-	16	8.3

II. We further focused to the group of patients with seizures (n=193). In this group, the primary substance of dependence was alcohol (n=172, 89.1%), polymorph dependence was present in 8.8% (n=17), the rest of the patients were gamblers (n=4). (Table 3)

Among the patients with epileptic seizures there is a higher frequency of alcohol abusers than in the group without seizures, which confirms the well-known presence of a significant relationship between alcohol abuse and appearance of epileptic seizures, valid also when for patients using other addictive psychoactive drugs. (Table 4)

Seizures appeared in 8.8% (n=17) in the group of patients addicted to non-alcohol drugs (n=223). In 70.6% of patients in this group the seizures appeared in opiate-dependent patients.

We found that the use of addictive substances has already started in adolescent age, and the appearance of seizures as early as in reproductive age. The average age in both study groups was 39.5 years. In the group with epileptic seizures, one case is reported where the first alcohol consumption was in the age of 8 years! (Table 5)

We have also investigated several parameters of life quality among the dependent patients with and without

Table 7. Marital status in both groups

Status	without epi		with epi	
	N	%	N	%
Single	523	34.6	72	37.1
Married	625	41.4	67	34.8
Divorced	308	20.4	46	24.2
Widows/ers	53	3.5	8	3.9

Table 8. Employment

Employment	without epi		with epi	
	N	%	N	%
Employed	445	34.1	43	22.3
Unemployed	1041	43.8	90	46.6
Others	333	22.1	60	31.2

Table 9. Driving license (DL)

Patient and DL	without epi		with epi	
	N	%	N	%
DL holder	658	43.6	79	40.9
No DL	382	25.3	91	47.1
DL withdrawn	15	0.7	5	2.6
DL withdrawn 2 and more times	3	0.2	1	0.5

epileptic seizures such as education, marital status, employment and driving license holding. (Table 6)

Nearly one half of dependent patients with seizures have graduated from a specialised high school. This may raise the question whether those patients were involved in hazardous works.

Only about 1/3 of addicted patients with seizures live in a relationship. More than 65% has no partner (single, divorced or widows/widowers,

in total 65.2%) while in seizure-free patients this ration is lower (58.5%). (Table 7)

Dependence in parallel with seizure disease obviously leads to a decreased frequency of employment. One third of patients with seizures (31.2%) are on pension due to disability or are retired, some of them have occasional employment, and for part of them this information was not recorded in the anamnesis. (Table 8)

Table 10. Psychiatric and somatic co-morbidity in dependent patients with epileptic seizures

Psychiatric co-morbidity and epi	N	%	Somatic co-morbidity and epi	N	%
None	90	46.1	None	73	37.9
Depression and anxiety	66	34.3	Liver disease (HCV)	62	32.2 (5.8)
Organic disorder	13	6.9	Hypertension	16	8.1
Personality disorder	13	6.9	Hyperlipidemia	7	3.5
Psychotic disorders (hallucinos. DT)	11	5.8	DM	4	2.3
			Tbc	4	2.3
			Others	27	14
Total	193	100	Total	193	100

We have investigated whether the dependent patients hold a driving license. (Table 9) Nearly 41% of dependent patients (mostly alcohol abusers) with seizures hold a driving license. A question emerges regarding road traffic safety, as well as a potential explanation for road accidents without a clearly identified reason.

When focusing on psychiatric co-morbidity, dependent patients with seizures most frequently (34.3%) have depression and anxiety disorders (social phobia, panic disorder). No psychiatric co-morbidity was detected in 46.1% of patients.

Somatic co-morbidity was found in 62.1% of dependent patients with seizures, the most frequent condition was liver damage, as expected. 5.8% were HCV positive among the non-alcohol dependent patients. 37.9% had no somatic co-morbidity.

We did not investigate pharmacological treatment, thus we did not assess side effects of pharmaceuticals (e.g. anti-epileptics and resulting liver damage). Due to incomplete data on co-morbidity in the group of dependent patients without seizures, we were not able to compare this parameter in the two groups.

As much as 53.9% (n=103) of dependent patients with seizures also have at least one of the listed psychiatric disorders.

As much as 2/3 of dependent patients with seizures (62.1%, n=120) have somatic disease, liver damage being the most frequent.

37.9% of patients have no somatic disease. We have found pancreatitis, gastrointestinal ulcers, virus related diseases, psoriasis, colitis ulcerosa,

varices of hindlimbs, migraine, VAS, sinusitis, bronchitis and other diseases in the group of other somatic disorders (in n=2 patients per disease, in average). (Table 10)

DISCUSSION AND CONCLUSIONS

By comparing the investigated data in the group of dependent patients without seizures (1st group) with dependent patients with detected seizures (2nd group) we have found:

Each 8th treated dependent patient had at least one epileptic seizure. Alcohol addicts prevailed in both groups, with 5 time higher percent of appearance of seizures among men than among women. We identified higher percentage of alcohol addicts (89.1%) in the 2nd group when compared with the 1st group (69.3%).

This finding supports the fact that alcohol when compared with the other addictive substances is obviously an important indicator of appearance of seizures (Höschl, 2004).

Dependent patients with epileptic seizures (1st group) started to use addictive substances in younger age, and the average duration of addiction is longer in this group - this finding can be also linked to the appearance of seizures.

Regarding education, addicts mostly graduated from specialised high schools in both groups. We found lower appearance of seizures in the group with completed university education.

More patients lack family background and employment in the 2nd group. Obviously due to seizures they have to avoid hazardous jobs (working in shifts, with machinery, in elevated spaces, with fire, sharp tools...).

Nearly the same percent of dependent patients in both groups (43.6% vs. 40.9%) holds a driving license, thus they probably also drive a motor vehicle.

It seems reasonable to investigate and to adopt stricter legislative measures, because the actual tendency in Europe is aimed at decreasing road accident frequency. Can the seizure disease be left unidentified by the experts? Is there any person who initiates withdrawal of driving license from such patient?

Frequent additional psychiatric co-morbidity (nearly in 54%) emphasises the need of complex treatment in the group of dependent patients with seizures. Seizure disease (limiting work efficiency, sport activities, influencing the lifestyle of the individual...) can contribute to development of other diseases such as depression, organic syndromes and others. Similarly, frequent somatic diseases in more than one half of the group with seizures (more than 62%) highlight the fact that this group of patients requires thorough and probably financially more demanding health care.

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Correspondance: MUDr. Mária Martinove, PhD. Odborný liečebný ústav psychiatrický, n. o. 04901 Predná Hora, Slovakia. tel. +421 584866103; fax: 0584866200
e-mail: maria.martinove@olup-prednahora.sk

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Epilepszia és függőség

Az epilepszia gyakori neurológiai betegség, melynek prevalenciája nagyjából 1%. Érdekes kérdés azonban, hogy a betegek esetében milyen arányban áll fenn komorbid szerfüggőség. Az epilepszia a patológiás agyi károsítások által kiváltott görcsjellegű állapotokban nyilvánul meg, melyet jellegzetes neurológiai és testi tünetek kísérnek. Ismert, hogy szerfüggők esetében magasabb a görcsök gyakorisága. Ez nem csak alkoholfüggők esetében van így, de az illegális drogok használói között is. Tanulmányunk célja áttekintést adni az epilepszia prevalenciáját illetően a kórházunkban szerabúzus zavar miatt kezelt páciensek körében. A szerző epilepsziás görcsöket mutató, illetve nem mutató szerfüggő betegek csoportját hasonlítja össze. Mindkét csoportban többségben voltak az alkoholfüggők. Minden 8., dependencia miatt kezelt beteg esetében legalább egyszer jelentkezett epilepsziás görcsroham. Mindkét csoport esetében a betegek nagyjából ugyanannyi százaléka (43.6% vs 40.9%) rendelkezik jogosítvánnyal, így valószínűleg vezet is autót. Kezdeményezi-e bárki, hogy az ilyen betegektől bevonják az autóvezetői engedélyt? A görcsöket mutató csoport több mint felére (több mint 62%) jellemző gyakori szomatikus megbetegedések hangsúlyozzák a tényt, hogy a betegek e csoportja teljes körű és valószínűleg nagyobb költségekkel járó egészségügyi gondozást igényel.

Kulcsszavak: epilepszia, függőség