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Personality Profiles of Patients with Psychogenic Nonepileptic Seizures

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1. Introduction

Despite the substantial prevalence of psychogenic disorders (from 50% to 70% of patients who report to physicians of various specialities are treated for psychogenic, functional disorders), these disorders continue to be relatively poorly understood (Hamilton et al., 1996; Mace & Trimble, 1996). Psychogenic nonepileptic seizures (PNES) are one variety of psychogenic disorders. PNES are sudden changes in behaviour, usually of limited duration, which imitate an epileptic attack, but are not accompanied by EEG changes occurring during a genuine epileptic attack.

PNES are a diagnostic and therapeutic challenge. Some patients referred to epilepsy centres because of drug-resistant epileptic seizures have PNES. The consequences of a false diagnosis of epilepsy have profound effects like changes in antiepileptic drugs (AEDs), changes of doctors, frequent medical staff interventions, and numerous hospitalizations. Swift correct diagnosis and implementation of correct therapeutic intervention may protect this group from many adverse psychological and social effects and save society costs of unnecessary pharmacological treatment and disability pension. At present, from 7 to 16 years often elapse between the first dissociative seizure and correct diagnosis. This leads to symptom chronicity, making treatment difficult (De Tinary et al., 2002; Reuber et al., 2002). Some studies consistently report that up to one third of patients become chronically ill (Bodde et al., 2009). Economic concerns are also by no means trivial. The costs of inaccurate diagnosis in terms of public money are really colossal: patients with a diagnosis of epilepsy receive disability pension, are unsuccessfully (and unnecessarily) treated with antiepileptic drugs, move in and out of hospital, and wander from doctor to doctor in a never-ending quest for help. Researchers in the USA who studied the cost of treatment of patients with PNES found that the average cost of medical treatment dropped by 84% within six months of a correct diagnosis (Martin et al., 1998).

Dissociative disorders cause significant diagnostic problems. Prolonged dysfunction of this type, particularly paresis and dysaesthesia, may be related to an unresolved

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personality disorder. The most frequent forms of psychogenic disorders are limb paresis, headaches, backaches and psychogenic nonepileptic seizures. They often lead to incorrect medical diagnosis and may seriously jeopardise the implementation of appropriate and effective treatment. According to The International Statistical Classification of Diseases and Related Problems, the common theme of all conversion or dissociative disorders is partial or complete loss of normal integration between memories of the past, sense of identity, sensory sensitivity, and body movement control (ICD-10, 1992). Whatever their specific type, all dissociative disorders may subside within a few weeks or months, particularly if their onset coincided with a traumatic life event. More persistent dissociative disorders such as paralysis or dysaesthesia may be related to insoluble or interpersonal problems. These disorders used to be classified as various "hysterical conversions". Nowadays their origins are believed to be psychogenic and can be temporally related to traumatic events, insoluble or "unbearable" situations, or dysfunctional relations with the social environment. The symptoms often reflect the patient's ideas of how a somatic disease would manifest itself. The symptomatology is often very complex and confusing and may involve several body systems or functions. The patient may present with symptoms mimicking cardiologic, gastric, muscular-skeletal, urogenital, or neurological symptoms or may complain of pain or fatigue. All these forms of dysfunction have one common origin, i.e., somatisation. Somatisation means the individual propensity to present somatic symptoms and attract the attention of health care providers. At first glance, the symptom picture does not resemble psychiatric symptoms. The anomalies are rooted in the patient's social situation or are related to occupational responsibilities. The DSM-IV–TR diagnostic system relates somatisation to vegetative disorders, which present themselves in the form of somatic complaints, conversion disorders, hypochondriacal disorders, somatisation disorders, persistent psychogenic pain, or somatoform disorders. Incorrect diagnosis of conversion disorders as organic diseases is a serious clinical concern. It may lead to many misunderstandings in various medical specialities.

Psychogenic nonepileptic seizures are one variety of dissociative disorders. From 5 to 33% of all patients referred for epilepsy assessment actually suffer from PNES. In Europe, thousands of patients, most of them young, suffer from this type of seizures. Psychological criteria for the differential diagnosis of seizures are lacking, both in the literature and clinical practice. Frequently patients with PNES may be submitted to unnecessary intense treatment with antiepileptic drugs. The future of these patients largely depends on the accuracy of their diagnosis. Approximately 22% of drug-resistant epilepsies are in fact pseudo-drug-resistant. One frequent reason for drug-resistance is the psychogenic nature of some of the seizures. Such episodes are wrongly assumed to be epileptic seizures. Because of this, the true picture of epilepsy is blurred and this interferes with the proper treatment of the patient's true epilepsy. Wrong diagnosis leads to wrong treatment and the consequences for the patient may be dramatic. Prolonged inadequate and ineffective treatment is also a problem for physicians because it undermines their sense of competence and their confidence in contemporary medical expertise and the effectiveness of medication. On top of this, there are the social aspects of the problem. Instead of getting better and returning to normal life and work, wrongly treated patients remain on disability pension, convinced that they are seriously, organically ill.

2. Personality profiles of patients with psychogenic nonepileptic seizures: Our findings

Although the methods used to diagnose psychogenic non-epileptic seizures are expanding rapidly, it is still very difficult to identify proper causes. Psychological evaluation of patients with PNES using personality profile indicators (levels of anxiety and somatisation) may help us gain a better understanding of the etiology of psychogenic non-epileptic seizures. In our research, we utilize the Minnesota Multiphasic Personality Inventory (MMPI).

The MMPI is one of the most widely used psychological instruments. The first version of the test was constructed by Starke R. Hathaway and J. Charnley McKinley. The first theoretical and clinical publications on this test appeared in 1940. Since the original version of the MMPI was constructed many decades ago, it has been modified and amended, normalized, standardized and submitted to other procedures to improve its reliability and validity. The MMPI has 566 self-report items that respondents answer in a True/False format. The items cover a wide array of contents including general health, behaviours, social adjustment, marital problems, family problems, attitudes toward other people, attitudes toward generally accepted normative systems, tradition, religion, etc. The test is scored using a scoring template and raw scores are transformed into standardized scores based on available norms. The standardized scores are presented on a standard ten scale that can theoretically range from 0 to 100, with a mean score of 50 and a standard deviation of 10. A routine psychological interpretation of the MMPI is based on the respondent's normative profile (psychograph) which has three control scales used to assess the profile's validity and 10 clinical (personality) scales (Table 1). In order to obtain a truly informative assessment one must analyze the scale profile and their configuration.

Control scales
Lie scale (L)
Low frequency (F)
Correction (K)
Clinical scales
Hypochondriasis (Hs)
Depression (D)
Hysteria (Hy)
Psychopathic Deviate (Pd)
Masculinity-Femininity (Mf)
Paranoia (Pa)
Psychasthenia (Pt)
Schizophrenia (Sc)
Mania (Ma)
Social Introversion (Si)

Table 1. Normative MMPI profile. Scales and scale abbreviations

MMPI results are used to plan patient treatment and interventions whereas repeated assessments can be used to assess therapeutic outcome. The MMPI is used in differential

diagnostics on psychiatric wards, in psychological assessments, medical clinics specializing in various disorders, and institutions such as penitentiaries, police, military etc. The MMPI comes in several forms: paper-and-pencil booklets, audiocassettes, cards. The most useful form is a computerized version that greatly reduces administration time, simplifies scoring and offers a greater variety of interpretations based on the scale interactions and empirical indices.

Thanks to computer technology, it is possible to make rapid computations that have considerably widened our diagnostic possibilities and improved the original version of the MMPI. Computerized versions enable about 200 scales, diagnostic indices, and configurative indices to be analyzed, greatly enhancing our interpretative capacity. Today, a psychological diagnosis with the help of the MMPI not only takes advantage of these new possibilities, but also forces us to select our data more carefully and interpret the information on the different dimensions of personality more accurately. This requires competence in personality and clinical psychology and clinical experience.

3. Participants

The study was conducted at the Department of Neurology and Epileptology, Medical Centre for Postgraduate Education in Warsaw (Poland). Based on long-term video-EEG monitoring data the patients were divided into two groups: group I consisted of 70 patients (58 F and 12 M) with PNES and group II – 42 patients (30 F and 12 M) had epileptic seizures. The majority of the PNES (group I) were of the following three types: episodes imitating tonic-clonic seizures (35 patients), episodes imitating simple partial seizures, partial complex seizures, mioclonic seizures with dominating sensory or vegetative sensations accompanied by limited response to external stimulation (28 patients), and more than one form of psychogenic seizure (7 patients). In group II, 19 of the 42 epileptic patients presenting partial complex seizures had secondary generalised tonic-clonic episodes. Mean age was 24.5 and 26.3 respectively. Upon completion of the selection procedure, the MMPI was administrated to all participants.

4. The normative MMPI psychological profile

The MMPI scores were first submitted to a procedure which enabled the construction of normative personality profiles and differences in means obtained by the two groups were analyzed (Fig. 1).

The psychological profiles of our groups differed significantly, both with respect to the shape and values of the hypochondriasis (Hs) and hysteria (Hy) scores ($p \leq 0.001$). In patients with PNES, the mean Hs and Hy scores were higher ($p \leq 0.001$) than the D score. In patients with epileptic seizures, the Hs, D and Hy was reversed – D was significantly higher than Hs and Hy ($p \leq 0.01$). Elevated Hs and Hy scores and lower D scores are typical for individuals with a powerful need to interpret their problems in a way which is at once rational and socially acceptable. Such patients have a sense of entitlement (Jędzejczak & Owczarek, 1999; Owczarek & Jędzejczak, 2001). In the present study, higher Hs and Hy scores compared with D scores suggest the presence of a conversion mechanism (the so-called conversion dip). Analysis of the subscale data additionally suggests that the existence of psychogenic nonepileptic seizures or the predisposition to such seizures is reflected in a personality profile.

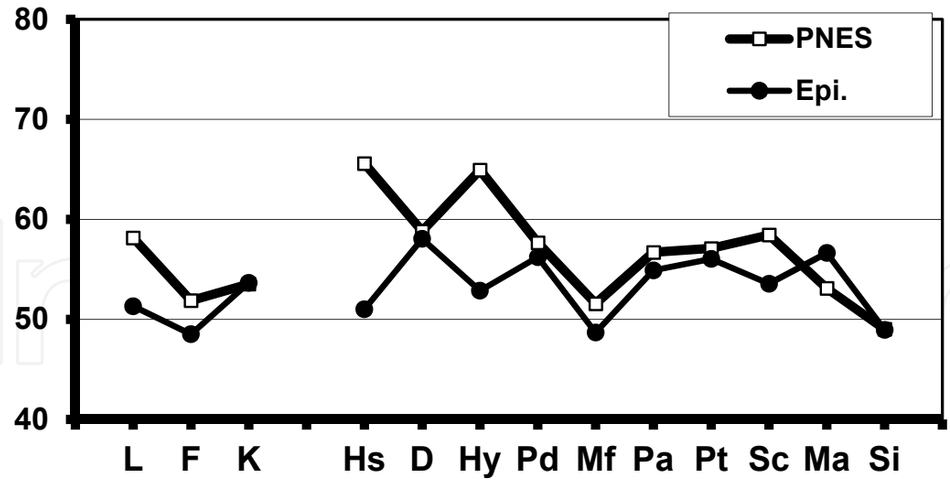

Fig. 1. Averaged MMPI profiles for the two groups. Symbols on the horizontal axis signify control scales (L – Lie scale, F – Low frequency, K – Correction) and clinical scales (Hs – Hypochondriasis, D – Depression, Hy – Hysteria, Pd – Psychopathic Deviate, Mf – Masculinity-Femininity, Pa – Paranoia, Pt –Psychasthenia, Sc – Schizophrenia, Ma – Mania, Si – Social Introversion); PNES - patients with psychogenic nonepileptic seizures; Epi.-patients with epilepsy.

4.1 Differences in Hysteria (Hy) scores

The next thing we did was to analyze the differences between the two groups on the Hysteria subscales. The differences between the mean scores of participants with PNES and

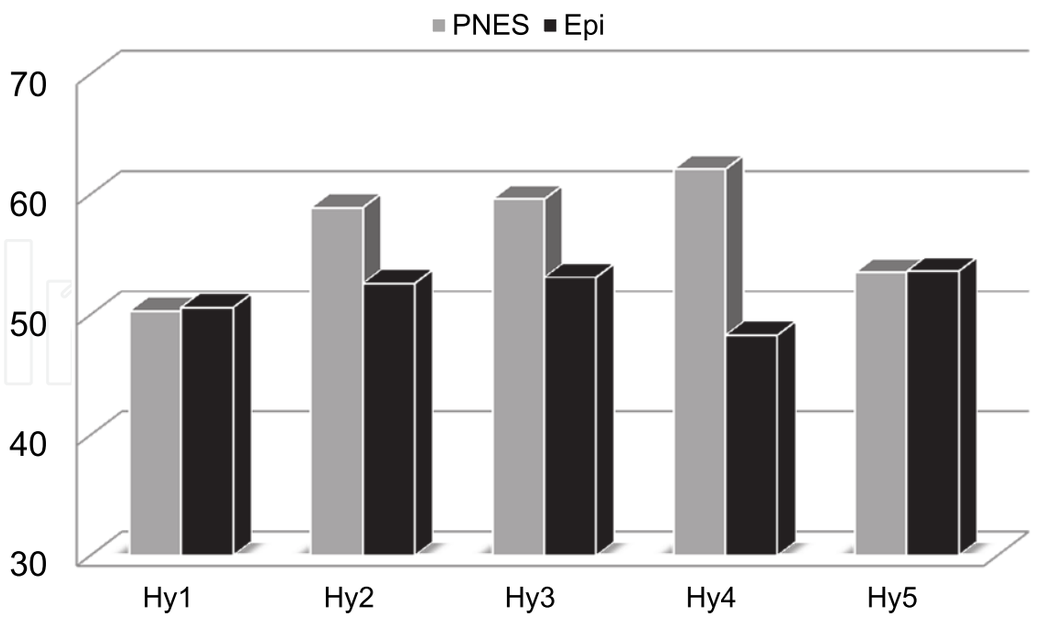

Fig. 2. Minnesota Multiphasic Personality Inventory (MMPI) – hysteria subscales. Hy1-denial of social anxiety; Hy2-need for affection; Hy3-lassitude-malaise; Hy4-somatic complaints; Hy5-inhibition of aggression; PNES-patients with psychogenic nonepileptic seizures; Epi.-patients with epilepsy.

participants with epilepsy on all five subscales, Hy1 – denial of social anxiety; Hy2 – need for affection; Hy3 – lassitude-malaise; Hy4 – somatic complaints; Hy5 – inhibition of aggression, are presented in Figure 2.

The greatest differences were found for subscale Hy4 ($p \leq 0.001$). Participants with psychogenic nonepileptic seizures reported significantly more nonspecific somatic complaints. The higher scores for subscale Hy3 in the PNES group compared with the group with epilepsy ($p \leq 0.01$) is indicative of greater weakness and fatigue. The significant difference for the subscale Hy2 ($p \leq 0.01$) indicates that participants with PNES have an excessive need of affection and were also very trusting and optimistic.

4.2 Discussion

Analysis of the Hysteria subscales sheds more light on the underlying mechanisms of PNES. The high Hy2 scores in participants with PNES suggest an excessive need of emotional contact. These people are extremely "emotionally adhesive" and they relate to people willingly and often indiscriminately. We noticed that when these people reported to an epilepsy clinic they often brought various cuddly toys, teddy bears, frogs, rabbits, etc. They demonstrate a great need to remain in the limelight, are extremely trusting and often naïve but on the other hand, they fear competition, confrontation and criticism. They tend to view other people as sensible, honest, and compassionate and this may be why they are frequently disappointed. They often experience internal tension and conflict between what they expect and what they get. If these internal conflicts intensify and if they lack socially acceptable forms of discharge of their mounting tension, they may resort to conversion as a form of adjustment.

Elevated Hy3 (lassitude-malaise) and Hy4 (somatic complaints) scores are the consequence of excessive Hy2 (need for affection). These people often tend to present as people suffering from a serious somatic disease. They arouse interest and sympathy, which help to reduce the emotional deficits caused by their excessive need for affection. This factor adds to a conversion mechanism. Psychogenic nonepileptic seizures are a source of primary gain in the form of energetic discharges of internal conflicts and tensions and secondary gain in the form of other people's interest and care (Devinsky, 1998). Our study confirmed this hypothetical mechanism (high Hy2, Hy3 and Hy4 scores).

The presence or predisposition to PNES was generally confirmed by the personality profiles. A relationship may also exist between the symptoms of nonepileptic seizures and the psychological variables measured by the MMPI. These problems need to be analyzed further at a deeper level. In our study, interpretation of the findings included the mean values of the variables in both groups, i.e. we based our interpretation on the most clear-cut central tendencies. This does not preclude the unequivocal operation of other mechanisms and causes of PNES, however. Only when we identify all pathological personality mechanisms of PNES will we be able to develop precise guidelines for prevention and treatment of these behaviour disorders. Such findings should also help to classify psychogenic nonepileptic seizures taking into consideration the etiology of personality disorders.

We know for certain that anxiety and somatisation contribute to PNES (Szaflarski et al., 2000; Owczarek, 2003a, b; Griffith et al., 2007). High levels of both these factors increase the likelihood of occurrence and recurrence of these behaviour disorders. We shall discuss this in the remaining sections of this article.

5. Anxiety dimensions

According to the literature, the factors frequently reported to lead directly or indirectly to psychogenic nonepileptic seizures include anxiety, difficulty controlling internal tensions and needs, and attention disorders (Devinsky, 1998; Donofrio et al., 2000; Swanson et al., 2000; Mökleby et al., 2002; Owczarek, 2002). Patients with PNES who have blatant anxiety symptoms can be classified as having one of the following four anxiety disorders: anxiety disorder without agoraphobia, anxiety disorder with agoraphobia, post-traumatic stress disorder (PTSD), or acute post-traumatic stress. Most symptomatic for anxiety disorders, with or without agoraphobia, are panic attacks with other symptoms which accompany these episodes or emerge in consequence of these episodes, or changes in behaviour. Panic attacks manifest with palpitations, sweating, chest pain, depersonalization, derealisation, loss of sense of control, the feeling that one is dying, etc. These symptoms may be classified as pseudoepileptic attacks or erroneously classified as epileptic seizures (like epileptic aura, partial simple seizures, and others). PTSD-related anxiety disorders and acute PTSD symptoms manifest as more general anxiety symptoms with more pronounced dissociation (Alper et al., 1997; Donofrio et al., 2000; Prueter et al., 2002). The basic difference between these two anxiety disorders is that the former one lasts over a month whereas acute PTSD lasts from 2 days to 4 weeks.

Roy and Barris (1993) compared patients with PTSD and patients with epilepsy on the Salkind Morbid Anxiety Inventory. Patients with PNES had significantly higher anxiety ($p \leq 0.001$) and significantly higher affective responses ($p \leq 0.001$). These results confirm the observations, made elsewhere, that patients with PNES are more anxious and more prone to affective reactions.

5.1 MMPI anxiety scales

Originally, the MMPI had two scales to measure anxiety and defence mechanisms: Anxiety (A) and Repression (R). These were identified by G. S. Walsh in 1956. High scores on scale A indicate general pessimism, apprehension and psychological discomfort, low self-confidence, and excessive focus on oneself and one's problems. High scorers' social attitude is pervaded with excessive docility, uncritical obedience to authority, submissiveness and shyness. High scorers on scale R typically resort excessively to defence mechanisms such as repression and rationalization. They constantly feel threatened and their excessively controlling ego helps them to defend themselves cognitively, affectively, and volitionally. They are slow to act and have great difficulty making decisions. One of their most dreaded fears is the fear of making a fool of themselves and the fear of social failure.

These scales greatly contributed to the normative description of personality and W. G. Dahlstrom, G. S. Welsh and L. E. Dahlstrom conducted an analysis of the MMPI scale configurations (Dahlstrom et. al.,1986). Their factor rotations yielded two factors, anxiety and somatisation. Therefore, it was now possible to obtain MMPI measures of these personality parameters on the basis of the scale configurations which these American researchers identified.

The anxiety configurations are as follows:

Anxiety Scale (AxS)
AxS = (L+Hs+Pa) - (D+Pt)
Expression-Repression Scale (ERI)
ERI = (L+K+Hy) - (Pd+Ma)
Neuroticism Index (NS)
Ns = (Hs+D+Hy)
Triad Elevation Index (TI)
TI = (Hs+D+Hy)/3 - (Pa+Pt+Sc)/3
Frustration Tolerance Index (FT)
FT = (Ma+Pd) (Hy+D)

If it is true that a tendency toward affective reactivity underlies PNES then this effect should be observed in emotional parameters of personality profiles of patients with PNES. These patients also differ in these respects from patients with epilepsy who do not have PNES. The MMPI enables us to assess these parameters vis-à-vis the population norm. This is extremely important when we want to identify the factors that contribute to the pathogenesis and consolidation of behaviour disorders. According to Dahlstrom and coworkers (1986), we can use the MMPI to control the levels of somatisation and anxiety as well as other personality parameters that may contribute to PNES. We will now analyze the anxiety indices. We will analyze the role of somatisation in the next paragraph.

5.2 Results

Significant between-group differences were obtained for the anxiety scales. Patients with psychogenic nonepileptic seizures scored significantly higher than the epileptic group on the Anxiety Scale (AxS) and the Expression-Repression Scale (ERI) .

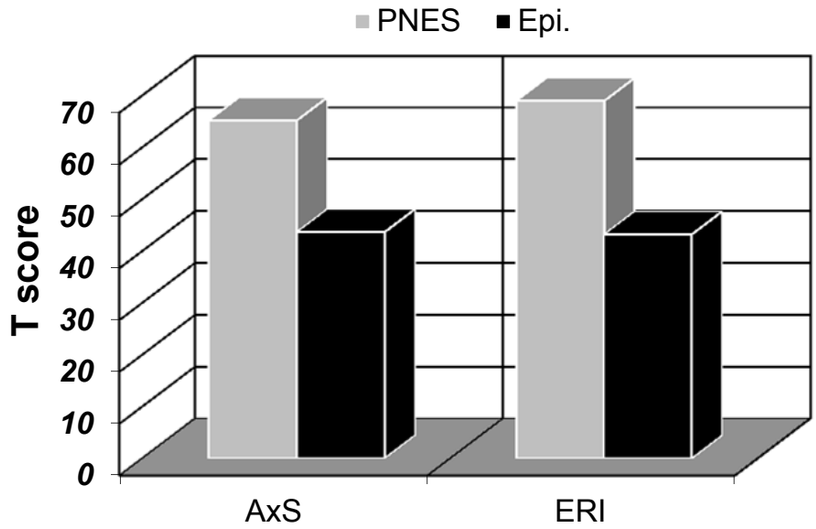

Fig. 3. Mean values of clinical parameters for the MMPI Anxiety Scale (AxS) and Expressive-Repressive Index (ERI) in the studied groups; PNES - patients with psychogenic nonepileptic seizures; Epi. - patients with epilepsy.

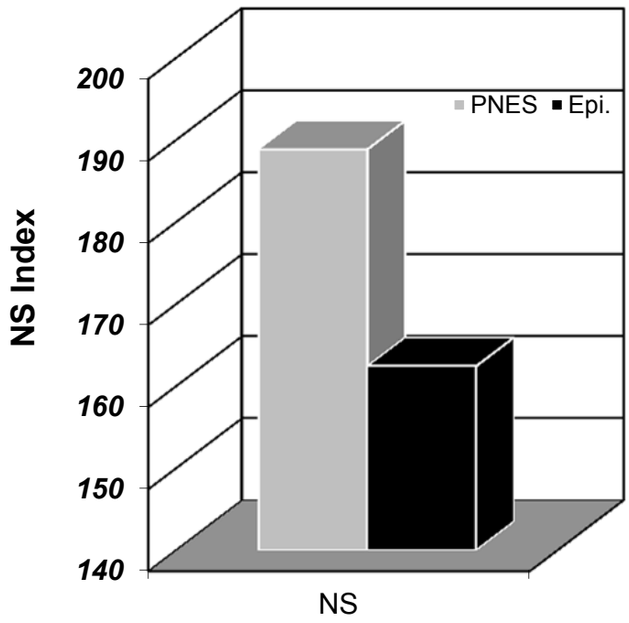

Fig. 4. Mean Neuroticism Index (NS) in the studied groups. PNES - patients with psychogenic nonepileptic seizures; Epi.-patients with epilepsy.

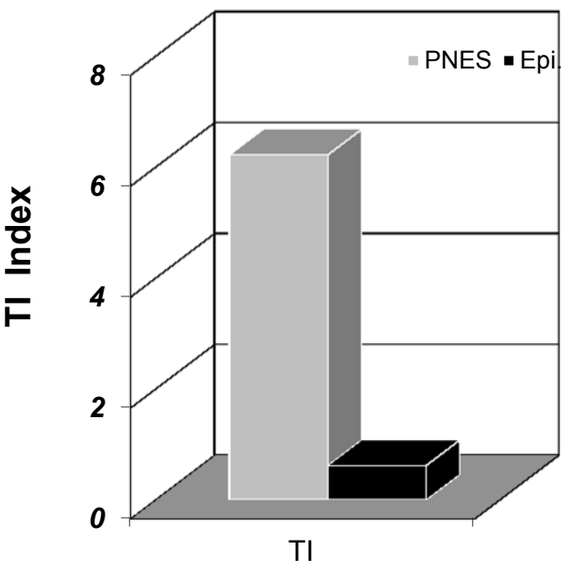

Fig. 5. Mean Triad Elevation Index (TI) scores. PNES - patients with psychogenic nonepileptic seizures; Epi.-patients with epilepsy.

Statistically significant differences between the two groups were also found for the Neuroticism Index (NS), Triade Elevation Index (TI), and Frustration Tolerance Index (FT).

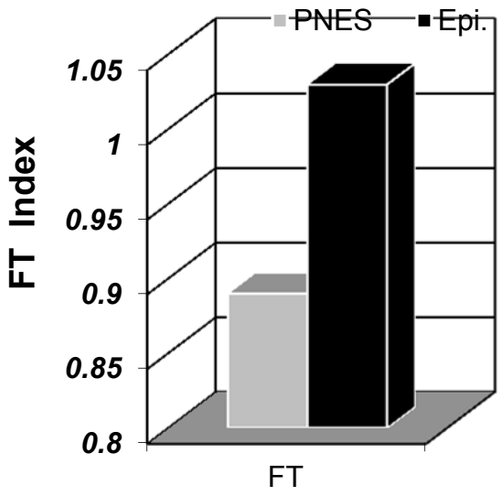

Fig. 6. Mean Frustration Tolerance Index (FT); PNES-patients with psychogenic nonepileptic seizures; Epi.-patients with epilepsy.

These findings suggest that the existence of psychogenic nonepileptic seizures or the predisposition to such seizures is reflected in the anxiety dimensions of a personality profile. Psychological evaluation of anxiety may help us to gain a better understanding of, and discrimination between, patients with psychogenic nonepileptic seizures and epileptic seizures.

5.3 Discussion

The psychological causes of PNES postulated by the researchers whose work was reviewed in the introduction to this chapter are reflected in the MMPI anxiety parameters. Once again, we need to make it clear that the PNES and patients with epilepsy differed with respect to the studied personality dimensions. In PNES participants, the mean AxS and Expression-Repression scores were elevated, suggesting that anxiety and maladaptive defence mechanisms are the mechanisms underlying psychogenic nonepileptic seizures. Defence mechanisms enable rational and socially acceptable need satisfaction. However, when the methods used to reduce mounting tension are inadequate, PNES help to abreact stress (primary gain). PNES also help to attract care and attention (secondary gain). Both types of gain reinforce the tendency toward seizures. In other words, PNES are a "pathological adjustment". They help the patient to ward off other intense negative emotions caused by unsolved and unsolvable life situations.

Reduced frustration tolerance is the direct cause of the inability to cope with psychological discomfort. When a person is unable to cope, he or she resorts to PNES to solve his/her problems. Attention is shifted from the psychological discomfort to "health problems" which are felt to be objective and independent. People who have PNES are often stubborn, determined and "attached" to their presenting somatic complaints. They often reject the

doctor's opinion and deny the validity of medical tests, making it very hard to treat psychogenic epileptic seizures.

More generally, elevated anxiety scores suggest that problems of patients with PNES are related to an emotional dysfunction. Elevated emotional indices in the MMPI in their personality profiles unequivocally point to anxiety, psychological tension and increased defence against intense affect. Since these patients' defence mechanisms are inefficient, relations with the proximal environment are dysfunctional and more general social adjustment is poor. Patients are therefore motivated to seek other ways of attracting caring attention.

Elevated Neuroticism and triad elevation confirm the neurotic nature of the symptoms. Because of their emotional deficits, patients with PNES often have disturbed social relations. In the literature (e.g. Roy & Barris, 1993), PNES patients' poor social communication is emphasized. The feeling that one is living in a rejecting social environment and cannot communicate one's grudges, fears, and needs directly causes these patients to feel frustrated and is a source of unresolved and mounting tension. Psychogenic nonepileptic seizures are a way of attracting attention, concern, understanding and compassion. Family, co-workers , and even close friends are seldom aware of the problems these patients are experiencing.

5.4 Somatisation indices

Somatisation disorders consist of various recurrent and often changing somatic symptoms such as gastro-intestinal, heart and lung, neurological, urological, sexual complaints, and others. Patients may report these symptoms wrongly and often exaggerate or dramatize them. They sometimes produce their own original theories of complex, multi-organ disease. PNES may be the only health problem, but more often than not they co-occur with other somatisations. Most patients with somatisation disorders have a history of frequent hospitalizations and medical tests whose results were negative. If there is comorbidity, it does not justify the range or intensity of complaints and depressed mood (ICD-10). Somatisation disorders are usually accompanied by exaggerated concern with one's health. Patients usually address very clear expectations to the medical staff. They want medical diagnosis that sounds professional and confirms their symptoms. When medical examination fails to find any organic foundation for their health complaints, patients usually conceal the fact that they have consulted a doctor or been to hospital. They often behave as if they were manipulating people and they make repeated attempts to take advantage of the medical personnel. Somatisation disorders can co-occur with anxiety, depression, and suicidal ideation or attempts. These patients are reluctant to accept the verdict that the nature of their problems is psychological. Despite the lack of confirmation of organic etiology, they are determined to have even more laboratory tests and demand even more medical consultations and hospitalizations. Somatisation disorders are chronic and are usually accompanied by maladjusted interpersonal, family and social functioning.

According to Dahlstrom and coworkers (1986), the MMPI can be used to assess somatisation factors. These researchers identified the following personality predictors of somatisation disorders using factor analysis: Hypochondriasis (Hs), Somatic Complaints (Hy4), Physical-Somatic complaints.

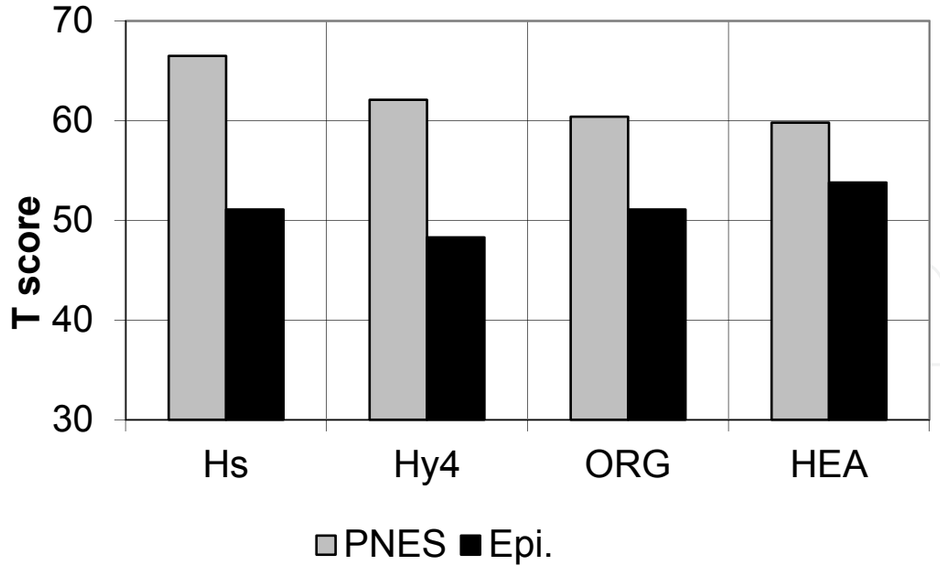

Fig. 7. Differences in somatisation indices in the studied groups: PNES - patients with psychogenic nonepileptic seizures; Epi. - patients with epilepsy; Hypochondriasis (Hs), Somatic Complaints (Hy4), Organic Symptoms (ORG), Poor Health – (HEA). Complaints (Si6), Organic Symptoms (ORG), and Poor Health (HEA).

Significant between-group differences were obtained for the following somatisation indices (mean scores): Hypochondriasis ($p < 0.001$), Somatic Complaints ($p < 0.001$), Organic Symptoms ($p < 0.015$) and Poor Health ($p < 0.05$). No significant differences were found for Physical-Somatic Complaints. These findings suggest that the existence of psychogenic nonepileptic seizures or the predisposition to such seizures is reflected in the values of the somatisation indices in the personality profile.

5.5 Discussion

The differences that we found in the studies reported above enabled us to identify several psychological variables that can be used to make a differential diagnosis between psychogenic nonepileptic seizures and epileptic seizures. The mean somatisation indices in the three studied groups differed greatly and these differences have a repetitive, statistically confirmed pattern. Patients with PNES had higher scores on all measured parameters than patients with epilepsy. The greatest difference was found for Hypochondria. The high Hs scores in the PNES group signify excessive concern with one's body and its functioning and the reporting of many somatic complaints. Paradoxically, patients with real somatic symptoms (epileptic seizures) had much lower Hs scores. As far as the three remaining indices of subjective somatic disorder are concerned, the largest difference was found for Somatic Complaints. The PNES patients scored highest on this scale which means that they report the highest intensity of neurological symptoms such as headaches, fainting, nausea, trembling, distorted vision etc. They also habitually resort to such defence mechanisms as repression and affect conversion. The differences on the two remaining scales, Poor Health (HEA) and Organic Symptoms (ORG) are also significant but they are less pronounced and therefore these scales are not so discriminating. The different groups are less distinct as far

as these scales are concerned, probably because they measure symptoms, which are more related to the functioning of the organism as a whole, and to somatic complaints localized in the gastro-intestinal and urogenital systems.

In our study, patients with PNES had higher scores than patients with epilepsy on four out of five somatisation measures. This means that PNES is related to a higher tendency to view one's health problems as organic. The differences between the groups were only statistically nonsignificant for one parameter, Somatic Problems (Si6). This is a subscale of the Social Introversion (Si) scale and signifies concern with one's health and appearance. However, its value depends more heavily on constitutional factors than the values of the remaining indices that are more environmentally determined. This finding is consistent with earlier reports, which have drawn attention to the importance of family and environmental determinants of somatisation (Livingstone et al., 1995; Garralda, 1996; Devinsky, 1998; Owczarek, 2003b).

Wood and coworkers (1998) conducted a psychological study of families of patients with psychogenic nonepileptic seizures and found that these patients' family environments contained several factors inducing and reinforcing somatisation. Families of patients with PNES had significantly higher levels of poor adjustment to life and other psychological problems than families of patients with epilepsy. The psychological profiles of patients with PNES and their families are very similar and their dominant features are excessive criticism, hostility, and focus on health problems. Their preferred method of coping with anxiety, depression, and life failures is focusing on an illness – their own and/or their families'. This is the way of avoiding daily hassles and it is a convenient and socially accepted explanation and justification of disappointment and failure. In addition, other anomalies such as communication problems or unfair systems of reward and punishment in the family are ignored or suspended when a family member falls ill. Somatisation helps to bond family members. However, because its motives are not fully conscious, they are difficult to identify and because somatisation is so persistent and is often cross-generationally transmitted, therapy is extremely difficult.

More generally, elevated anxiety and somatisation indices mean that the problems of patients who demonstrate nonepileptic seizures are definitely neurotic disorders. The elevated personality indices in the MMPI unequivocally confirm that the personality profiles of these patients show signs of anxiety, psychological tension, and heightened defence against intense emotions. Failure of defence mechanisms leads to impaired functioning and overall poor social adjustment. The observed factors may also be responsible for frequent somatisations, including psychogenic nonepileptic seizures, as a way of reducing tension. In our study, we analysed average measures of existing personality dysfunctions in patients with psychogenic nonepileptic seizures. If only we could gain a better understanding of this dysfunction in each particular patient, this would help us to personalize psychological intervention. A therapist should always try to accentuate certain aspects of therapy and focus less on other aspects depending on the diagnosis of each patient's personality problems.

6. Treatment

When dealing with patients in whom PNES is suspected we must pay attention to such issues as adequate rapport, motivation to cooperate and adequate information concerning the need to conduct specific tests and examinations. The importance of the patient's attitude toward the physician/therapist cannot be overemphasized. An atmosphere of suspicion must be avoided at all costs. The patient should feel that he/she is undergoing a routine

procedure to identify the cause and nature of his/her problems. The principle of trust building and honesty must be adhered to because this will have a profound effect on the success of the examination and further treatment. Once the diagnostic problem has been unequivocally resolved and the nonepileptic nature of the seizures has been established, we must deal with the problem of how to inform the patient about the nature of his/her disorder, because the way we tackle this problem will have an extremely important effect on the prognosis. Most patients tend to react with intense guilt. This guilt is exacerbated if the patient's environment blames him/her for deceiving it and accuses him/her of malingering. Another potential reaction is denial of the diagnosis and lack of confidence in the physician's competence. In this case the patient will have a natural tendency to try to convince the doctor of the epileptic nature of his/her symptoms and we must expect considerable intensification of premeditation, increased frequency of seizures and increased dramatisation of their consequences. In both cases, the situation may become very serious and the prognosis may be bad. We must therefore take several inevitable precautions and obey several well-tested clinical rules:

- do not blame the patient
- do not make light of his/her symptoms
- do not reinforce his/her tendency toward seizures
- listen rather than giving advice

It is extremely important that we obey all these rules consistently and simultaneously and that we practice patience and insightfulness in both diagnosis and therapy. Patients themselves often want to share their ideas concerning the source of their troubles and tell us about their daily hassles. This way we can gather information about the contingencies of the seizures. We must remember, however, that patients are unaware of the real causes of PNES. Meanwhile, a clinician must identify the mechanism of the disorder in each individual patient and usually needs to pick the relevant information out of the irrelevant background.

According to an American research (Ettinger et al., 1999) in the New York agglomeration, about one-half of patients with PNES are referred to psychiatrists, fewer than 20% to psychologists and the rest to other specialists. Treatment efficacy reports differ depending on the criteria of improvement, observation duration and treatment model.

According to the literature, satisfactory improvement (between 50 and 100% reduction of seizure frequency) is achieved in 34-76% of cases depending on the source (Ettinger et al., 1999; Irwin et al., 2000; Silva et al., 2001). We know from clinical experience that when treating patients with PNES it is important to convince the patient that he/she is capable of gaining control of previously uncontrollable seizures, which left him/her feeling helpless, and of preventing further seizures. In patients with PNES who feel their functioning is aimless and ineffective and their environment is hostile or blaming, one of the goals of therapy is to find positive and socially acceptable forms of emotional abreaction and tension reduction.

Uhlmann et al. (2011) analyzed the effectiveness of PNES therapies in various centres providing such therapies. The most frequent approach is cognitive-behavioural therapy, based on the bio-psycho-social model. According to this model, neurotic symptoms are stable reaction patterns triggered by a variety of life situations, which produce tension and anxiety. The clinician's goal is to extinguish inadequate reactions to stimuli and supplement them with new, adequate reactions and habits. Patients in therapy learn new ways of integrating

incoming information and new responses and this enables them to adjust to reality better. Of course, when we explore emotions and behaviour of people with psychogenic nonepileptic seizures we find shortcomings in various areas relating to the development of this pathological form of adaptation. Therefore, common forms of psychotherapy are designed and several different objectives are addressed: to strengthen the personality defence mechanisms and coping strategies, to improve emotional resilience, and others. Therefore, given the variety of forms and methods of treatment guidelines, it is difficult to do well-conducted, prospective, randomized studies and to control psychotherapy outcomes. As the authors very aptly point out, "also it should be stressed that complete and immediate ending of seizures must not always be the first goal of the treatment". First, one must find the primary cause of dissociative seizures and concentrate on its treatment. Both psychodynamic and cognitive-behavioural treatments equip patients with several specific skills. If one does not take care of the primary cause, this disorder will transform into other pseudo-neurological, pseudo-cardiological, pseudo-sexuological, or others (Uhlmann et al., 2011).

The authors accurately present the stage of progress in explaining the phenomenon of psychogenic nonepileptic seizures. Their attention is directed to issues related to the effectiveness of therapy and they provide a comprehensive analysis of work in progress. There is nothing missing in their report. Methodological difficulties in constructing valid studies in this field are correctly assessed. On this basis, we can conclude that we still have a long way to go before we know how to treat dissociative seizures effectively and to achieve long-lasting effects.

7. Concluding remarks

It is now quite clear that individuals with PNES and individuals with epilepsy have different MMPI personality profiles. Nevertheless, the jury is still out on the aetiology, diagnosis, and treatment of PNES (Owczarek et al., 1995; Jędrzejczak et al., 1999; Rowan, 2000; Storzbach et al., 2000; Griffith et al., 2007). True, differences of opinion no longer concern the imponderables. Rather, it is now a question of distribution of accents. If we focus on empirical facts we need to point out the presence of the so-called conversion dip (Hy, Hs > D) in profiles of persons with PNES. These persons do not signal their psychological discomfort directly. They do so indirectly, in ways that are more symbolic. This is one of the reasons why PNES are usually so sudden and dramatic. The symptoms attract attention and compassion and PNES patients are hungry for both. They are unable to get them, abreact their amassed emotions, stresses and tensions at the energy level of behaviour, but manage to avoid other negative reinforcements and failures.

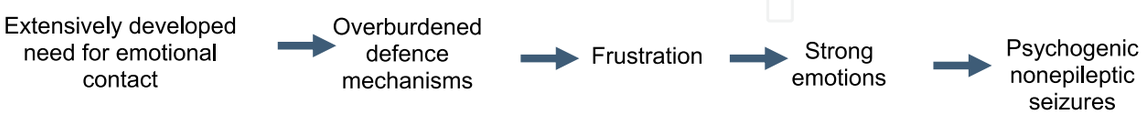

Fig. 8. Evolution of pathological adaptation of the original cause of the excessive need for emotional contact to the effects in the form of psychogenic nonepileptic seizures

An extensively developed need for emotional contacts is probably at the roots of the disorder. We have empirically confirmed this hypothesis: patients with PNES have elevated need for affection (Hy2 scores). They are "emotionally adhesive" for purely instrumental reasons. This superficiality facilitates emotional contacts with the environment in the short

run and they seek such contacts consistently and indiscriminately. Time and time again our attention was drawn to the fact that these grown-up people came to the clinic carrying all sorts of cuddly toys, which helped them to express their emotionality. This is another of our findings. It looks as if one of the conditions sine qua non of PNES is poor frustration tolerance. Our PNES participants had low Frustration Tolerance Indices (FT). Low frustration tolerance leads directly to inability to cope effectively with psychological discomfort and the uncontrollable urge to achieve immediate problem resolution, both of which reinforce the tendency toward PNES recurrence. One of the consequences of this dysfunction is that persons with PNES suddenly switch their attention from their psychological problems with which they are unable to cope to "health problems", which they feel to be objective and independent and which a doctor, not they themselves, should resolve. However, patients with PNES do not really want to get better. Their psychogenic disorder is often accompanied by a peculiar "attachment" to their somatic complaints. In order to make therapy difficult and make recovery impossible, they negate the doctor's opinion and the validity of medical tests. They rarely comply with doctor's orders but they are often impatient and complain that treatment is not working. Even if we manage to convince them to comply with a prescribed therapy, their compliance may be short-lived. Meanwhile, they have numerous personality problems that need to be treated and this takes time and effort.

We found that patients with PNES also obtained high scores on somatisation indices. High Hypochondriasis scores mean concentration on one's health and especially in its complications. High scores on Somatic Complaints mean that patients report many different somatic symptoms. Paradoxically, patients with real somatic symptoms (epilepsy) obtained much lower scores on this index. A high Somatic Complaints score also means uncritical and excessive use of such defence mechanisms as affect conversion. The fact that patients with PNES also have depressed mood and actually feel extremely unhappy most of the time makes problems even worse. PNES patients with severe mood problems show similar, low levels of health-related quality of life (HRQOL) to patients with severe mood problems who have epilepsy (Szaflarski et al., 2003; Griffith et al., 2007). In our study patients with PNES had even higher levels of depression in the MMPI than patients with epilepsy.

The only somatisation index which was not elevated in patients with PNES was Physical-Somatic Complaints. This parameter is empirically related to Social Introversion and means the tendency to worry about one's health and appearance. This variable is more constitutionally determined than the other somatisation indices, which are more environmentally determined. This suggests that family and environmental factors are more responsible for somatisation than constitutional factors. Our study confirmed this observation. We found much higher levels of poor adjustment to life, failure and other psychological problems in the families of patients with PNES.

Psychological profiles of patients with PNES and their families were quite similar and dominated by excessive criticism, hostility, and concentration on health problems. Our findings suggest the presence of factors responsible for the development and consolidation of somatisation in the families of patients with PNES disorders. When a family member develops PNES, this provides a convenient and safe explanation for the family's problems. Concentration on an illness – one's own or a family member's – helps to cope with anxiety, depression and failure. PNES provides an escape from daily hassles and is a convenient and socially acceptable "explanation" for disappointment and failure. When a family member is ill, problems with communication, unfair reward and punishment systems, etc. are no

longer important. Paradoxically, somatisation helps to bind the family together. Because the motives underlying PNES are unconscious, they are difficult to identify. What is more, they have often been operating for several generations and become a family tradition. Sometimes a doctor is the only one who wants the patient to get better, even the patient does not want to recover. No wonder that treatment of psychogenic nonepileptic seizures is such hard work, takes so long and seldom succeeds.

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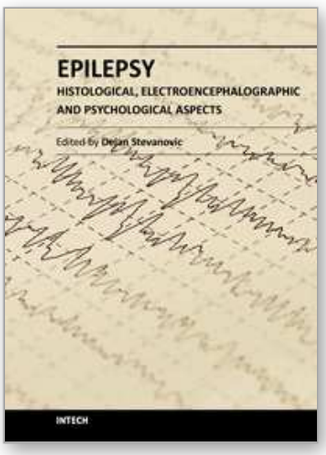

Epilepsy - Histological, Electroencephalographic and Psychological Aspects

Edited by Dr. Dejan Stevanovic

ISBN 978-953-51-0082-9
Hard cover, 276 pages
Publisher InTech
Published online 29, February, 2012
Published in print edition February, 2012

With the vision of including authors from different parts of the world, different educational backgrounds, and offering open-access to their published work, InTech proudly presents the latest edited book in epilepsy research, Epilepsy: Histological, electroencephalographic, and psychological aspects. Here are twelve interesting and inspiring chapters dealing with basic molecular and cellular mechanisms underlying epileptic seizures, electroencephalographic findings, and neuropsychological, psychological, and psychiatric aspects of epileptic seizures, but non-epileptic as well.

How to reference

In order to correctly reference this scholarly work, feel free to copy and paste the following:

Krzysztof Owczarek and Joanna Jędrzejczak (2012). Personality Profiles of Patients with Psychogenic Nonepileptic Seizures, Epilepsy - Histological, Electroencephalographic and Psychological Aspects, Dr. Dejan Stevanovic (Ed.), ISBN: 978-953-51-0082-9, InTech, Available from: http://www.intechopen.com/books/epilepsy-histological-electroencephalographic-and-psychological-aspects/personality-profiles-of-patients-with-psychogenic-non-epileptic-seizures

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