

Intersex Differences in Functional Neurological Disorders

Sanja Tomasović^{1,2,3}, Andrija Meštrović¹, Gordana Sičaja¹, Hrvoje Tomasović⁴, Jelena Koščak Lukač¹, Josip Sremec¹, Koraljka Bačić Baronica^{1,2}

¹Department of Neurology, Clinical Hospital Sveti Duh, Zagreb, Croatia, ²School of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia, ³Catholic University of Croatia, Zagreb, Croatia, ⁴Department for Tumors, University Hospital Center Sestre Milosrdnice, Zagreb, Croatia

Functional neurological disorders (FND) or conversion disorders are a group of disorders in which neurological symptoms are present, however the distribution of those symptoms cannot be explained by a neurological disease and no physical substrate is found [1-3]. Those disorders are a part of the larger group of somatoform disorders together with somatisation, conversive disorder, hypochondria, body dysmorphic disorder, sensory modulation disorder, somatisation, undifferentiated somatisation disorder and somatoform disorder without special classification [2-5]. Somatoform disorders have a prevalence of 0,2 - 0,7 % and are five times more prevalent in women. The aim of this study is to assess the properties of functional disorders in neurology.

Some research says that up to 33 % of patients that have been examined by neurologists have some form of somatoform disorder, furthermore, 70 % of neurologists do not recognise somatoform disorders. Another cause of neurological symptoms without a neurological disease is simulating and Munchausen's syndrome [6-8]. When simulating the patient imitates physical and psychological symptoms on purpose to

gain some sort of social, business or other benefit, whereas in Munchausen's syndrome the person does it without any external benefit, they do it to be considered a patient. FND's have an incidence of 4,12 / 100000 and a prevalence of 5 - 500 / 100000, furthermore 20 - 30 % of those patients will be hospitalized because of conversive symptoms. FNDs rarely appear before 10 years of age and are most prevalent in the age groups od 20 - 40 years of age. Research has shown that 24 % of psychiatric patients have at least 1 conversive symptom [9-12].

The most common symptoms are pain (12 %), hyper/anorexia (11%), paresis (11 %), headache (11 %), par/dysesthesia (10 %), astasia/abasia (8 %), seizures (7 %), episodic vertigo (7 %), persistent vertigo (6 %) and amnesia (5 %). The aforementioned seizures are called psychogenic non-epileptic attacks (PNEA), their prevalence is 2-33/100000, and their incidence is 3/100000 [5,10]. Among epilepsy patients the prevalence is 5 - 25 %, and 25 - 40 % of patients hospitalized because of refractory seizures have PNEA, furthermore 60 % of patients with PNEA are female. A meta-analysis of 52 papers and 2270 patients has shown that PNEA is more prevalent in women than paresis (74 vs 48 %). On the other hand, when considering paresis as a symptom of FND the incidence is 4/100000 and they appear in 31 % of patients with FND, the most common is unilateral hemiparesis (63 %), followed by monoparesis, leg monoparesis is more common than arm monoparesis. Paresis is usually accompanied by fatigue (80 %), the onset is usually rapid (46 %) and the paresis can be accompanied by: panic (59 %), dissociative symptoms (39 %) and can appear on a limb with previous trauma (20 %) [9-13]. There are tests used to check whether the paresis is organic in cause or conversive, such as: Hoovers' sign, give-way weakness, drift without pronation sign and dragging monoplegic gait. Hoovers' sign is used to test leg weakness, the patient must be lying on his back and the examiner puts their hand under the patients' "normal" leg while asking the patient to lift his "weak" leg, if the examiner feels pressure on their hand the patient is ac-

tually trying and the weakness is more likely to be organic, however if there is no pressure on the hand the patient isn't actually trying and the weakness is more likely to be conversive [14-16]. In the give way weakness test motor strength of the limb is tested and the onset of weakness is abrupt if the weakness is conversive. While testing anti-gravitational positions if there is drift without pronation the paresis is more likely to be conversive. Dragging monoplegic gait describes a gait in which the plegic leg is dragged while the knee is extended and the ipsilateral hip either externally or internally rotated; this contradicts with the circumduction usually observed in organic leg weakness [14-17]. Conversive symptoms can also appear as movement disorders in 2 - 4 % of patients with FND, more common in women. Tremor (33 %) is the most common movement disorder in FND, followed by functional dystonia (25 %), myoclonus (25 %), gait disorders (11 %) and parkinsonism (6 %). Another set of symptoms in FND are sensory symptoms, mainly consisting of paresthesia (50 %) and hypoesthesia (41 %), the symptoms usually do not follow any anatomical distribution. Furthermore 16 % of patients with FND have visual symptoms, such as: double vision, blurry vision and visual field defects, the most common symptom is total binocular blindness [15-18]. Patients with FND can have cognitive symptoms such as: confusion, concentration difficulties and slowness in communication. However, there is some doubt whether these symptoms should be considered a part of FND and it can be difficult to differentiate between FND and organic caused cognitive symptoms [18,19].

As per the previous texts, the average patient with FND is likely to be under 50 years of age, and is 5 - 6 times more common to be female. FND is also more common among rural populations, in developing countries, people with lower levels of education, people that are a part of a poorer socioeconomic group, among soldiers during a time of conflict and after natural disasters. What is more, people with FND are more likely to also have mood disorders, personality disorders, a history of abuse, they are less likely to accept stress as a cause [1,5,17,19]. An interesting development happened during the 1970's when the misdiagnosis of conversion had dropped from 15 - 40 % in earlier decades to below 10 percent, right after CT scanning was introduced into clinical use, thus enabling more rapid and precise diagnosis of a plethora of neurological diseases. Nowadays the average patient with FND reports regression of symptoms within 1 month, however up to 25 % report a relapse within 1 year, most likely within 2 weeks. The prognosis can be partially predicted through the clinical pre-

sentation of a patient. Patients with a rapid onset and shorter duration of symptoms, a clear cause of stress, without psychiatric or medical comorbidities, with a higher IQ, that are not in a court trial are more likely to have a positive outcome, as well as patients that present with sensory deficits, paresis, aphonia or blindness [3-5,17,19]. Moreover, a short delay between onset of symptoms and the beginning of treatment has been shown to be beneficial. On the other hand, patients with multiple symptoms, symptoms that have a longer duration, patients that also suffer from personality disorders, and patients that are convinced that the symptoms are irreversible or that have financial benefits are less likely to have a positive outcome. Furthermore, patients presenting with tremor or PNEA are more likely to have a poor prognosis [1,5,18].

An interesting fact is that a previous or concomitant neurological diagnosis is present with 18 - 64 % of patients with FND. Similarly, up to 50 % of patients with FND will be given a neurological or psychiatric diagnosis, most likely a mood disorder such as depression or generalized anxiety disorder, a personality disorder, moreover they are more likely to attempt suicide. On the other hand, no link has been shown between FND and psychosis or psychoactive substance abuse [18,19].

Functional neurological disorders pose a common and often elusive diagnostic problem. Their prevalence is difficult to estimate precisely, partially because a large portion of the patients are often misdiagnosed. All of this can negatively affect patients with FND because a quick beginning of treatment can increase the chance of a positive outcome. There is a large opportunity for the further development of the diagnosis and treatment of FND.

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Sanja Tomasović, MD, PhD, Department of Neurology,
Clinical Hospital Sveti Duh, Sveti Duh 64, 10 000 Zagreb,
Croatia, Phone: + 385 1 371 2142
E-mail: stomasovic98@gmail.com

