

Evaluation of Neurological Disability Status in Van City

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Abstract

Aim: Conditions resulting in loss of neurological functions affect the daily lives of the individuals, thus causing impairment. Collection of data related to neurological disability is needed for management of public health services. The aim of this study was to review medical disability reports of the cases examined neurologically by the medical committee of our hospital, and to evaluate the results of these reviews and present the obtained data to contribute to the statistical data relating to disability status in our country.

Material and Methods: Socio-demographic features, application reasons, types of neurological disorders and disability rates of the cases examined neurologically by our medical committee from 15th May–15th November, 2012 were evaluated retrospectively.

Results: Neurological disorder was found in 825 (27.2%) of 3034 cases who applied to medical committee of our hospital. Of these patients, 450 (54.5%) were males vs. 375 (45.5%) females with a mean age of 41.8. 22.3% of neurologically disabled cases were pediatric patients ≤10 years of age. Dementia (20.9%), cerebrovascular diseases (14.9%), cerebral palsy sequelae (14.3%) and epilepsy (14.2%) ranked among the most frequent pathologies. The most frequent application reason was seen to be requests for patient care fee (55.1%) and it was found that referrals for special education and rehabilitation had the highest rate of approval (98.7%).

Conclusion: There are a limited number of studies and lack of data relating to neurological impairment in our country. We postulate that the present study is a good example for showing the causes and frequencies of neurological disabilities in the relevant region.

Key words: Medical Committee, neurological disorders, neurological disability

Introduction

A disabled person is defined as an individual having difficulties adapting to social life and meeting daily requirements due to loss, to various extents, of the physical, mental, psychological, sensory and social skills congenitally or afterwards, and requiring protection, care and rehabilitation, counseling and support services (1).

Medical committee for the disabled organ within certain hospitals that are designated by

Ministry of Health, and is authorized to determine and report the disorders and disabilities of individuals. The committee consists of internists, general surgeons, ophthalmologists, ENT specialists, neurologists and psychiatrists, as well as physiotherapists and rehabilitators.

Medical committee report is the document indicating the disability and health status of the holders and the purpose of use. Regulations concerning how to issue the medical committee reports have been made with the Ministry of Health's "Regulations on Level and Classification of Disability and Medical Committee Reports to be Issued for the Disabled" promulgated on the official gazette no. 28173 dated 14.01.2012. (1).

Responsibilities of a social state include employment of the disabled and improving their living conditions. Detailed data relating to disability collected suitably is needed for determining what services to provide the disabled with, and using the available resources properly. The literature reviews show that there are a limited number of studies relating to disability in

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our country. Comprehensive studies on this issue are important since they shed light on the country's health policies.

Van city is located in the eastern side of Turkey and is one of the largest cities of our country with a 2012 population of 1051975 living in an area of 19069 km². 52% of total population is urban residents while 48% lives in rural areas. Agriculture is the main source of income for Van city. Tourism, industry and commerce also play role in the city economy. According to Turkish Statistical Institute data, per capita income in Van city is about \$4300. The hospital where this study was conducted is one of the main medical centers in the city. Many patients with neurological conditions and disabilities are referred to our hospital from towns and neighbouring cities.

Conditions resulting in loss of neurological functions affect the daily lives of the individuals, thus causing impairment. Therefore, neurological evaluation of patients referring to the Medical committee plays an important role in making decisions to determine the disability status and care requirements of these cases. Aim of this study was to review socio-demographic features, application reasons, types of neurological disorders and disability rates associated with the cases examined neurologically by the medical committee of our hospital, and to evaluate the results of these reviews and present the obtained data to contribute to the statistical data relating to disability status in our country.

Materials and Method

This study evaluated the cases who applied to our hospital from 15th May to 15th November, 2012 to get a medical committee report. All the reports were reviewed retrospectively and 825 subjects with neurological disorders were included in the study. Age, gender, residential information, application reasons, types of neurological disorders and disability rates of the subjects were evaluated, as well as the decisions made by the committee.

Cases requesting to be given a clean bill of health for various purposes such as job application, firearms license and driving license were not included in the study. Cases referring to our hospital to be given a disability report for being covered by Act no. 2022, receiving patient care fee, excise tax (special consumption tax – SCT–) deductions, appointment of the disabled, special education and rehabilitation, and determination of the disability level were included in the study. Less frequent cases referring to our hospital to be given a disability report for disability retirement, tax deductions,

disabled identification card, driving license category H and special equipment vehicle were presented in other causes of referring groups.

Frequently detected neurological disorders among the cases referring to the medical committee were grouped as cerebrovascular disease (CVD), epilepsy, cerebral palsy (CP) sequelae, dementia, myopathies, demyelinating diseases, Parkinson's disease, motor neuron disease (MND), central nervous system (CNS) tumors and traumas, injuries of peripheral nervous system and polio sequelae. Pediatric cases with growth retardation due to such pathological conditions as genetic syndromes, metabolic disorders or neural tube defect and disabled children whose etiological evaluation has not yet been completed were included and studied in motor retardation (MR) group. Less frequent causes of referring such as headache, peripheral facial paralysis, radiculopathy, polyneuropathy, myasthenia gravis, extrapyramidal system pathologies, ataxias and non-diagnosed walking disorders were presented in the other diseases group.

Microsoft Office Excel 2007 software was used to evaluate the statistical data.

Results

It was found that of 3034 cases applied to the medical committee of our hospital within the course of study 1219 (40.2%) were neurologically evaluated, of whom 825 (67.7%) had neurological disorders. Of all cases, ratio of the ones with neurological disorders was 27.2%.

Of 825 cases with neurological impairment, 660 (54.1%) resided in downtown Van and 472 (36.3%) resided in counties of Van while 76 (7%) resided in neighboring cities such as Hakkari, Şırnak, Bitlis, Muş, Siirt, Diyarbakır and Ağrı. 12 (1%) cases resided in İstanbul, whereas 19 (1.6%) cases resided in other cities.

Of the cases diagnosed with neurological disorders 54.5% were male (n:450) vs. 45.5% female (n:375). Mean age was 41. 22.3% (n:184) of neurologically disabled cases were pediatric patients ≤ 10 years of age followed by 14.3% (n: 118) representing elderly patients from 71 to 80 years of age (Table 1). The group with the highest mean age was dementia while it was lowest in motor retardation (Table 2).

The most frequent disorder was dementia (20.9%) vs. the least frequent disorder, which was MND (0.5%) (Table 3). CNS traumas and myopathies were the groups with the highest level of impairment due to neurological deficit. It was seen that epilepsy was the disease group with the lowest disability ratio. It was realized that

Table 1. Distribution of neurological impairment according to age groups

Age group	N	%
1-10	184	10.8
11-20	73	8.9
21-30	74	9
31-40	89	22.3
41-50	62	7.5
51-60	63	7.6
61-70	87	10.6
71-80	118	14.3
81-90	66	8
91-100	7	0.8
101-109	2	0.2
Total	825	100

Table 2. Age ranges and mean ages in the neurological disease groups

	Min.	Max.	Mean
CP SEQUELAE	1	49	11.35
DEMENTIA	50	109	77.28
DEMYELINATING	22	63	41.42
OTHER	11	76	48.93
EPILEPSY	2	67	26.45
MYOPATHY	3	47	16.33
MND	11	72	55.00
MR	1	12	3.30
CNS TUMORS	24	71	42.67
CNS TRAUMA	3	82	36.93
PARKINSON'S DISEASE	30	87	69.95
PERIPHERAL NERVE DAMAGE	1	88	35.55
POLIO SEQUELAE	21	57	36.08
CVD	22	93	61.84
Total	1	109	41.82

CP: Cerebral palsy, MND: Motor neuron disease, CVD: Cerebrovascular disease, MR: Motor retardation

Table 3. Frequency of neurological disorders in disability

	N	%
Dementia	172	20.9
CVD	123	14.9
CP sequelae	118	14.3
Epilepsy	117	14.2
MR	85	10.3
Other	46	5.6
Polio sequelae	41	5
Peripheral nerve damage	33	4
CNS trauma	27	3.3
Parkinson's disease	20	2.4
CNS tumors	15	1.8
Demyelinating	12	1.4
Myopathy	12	1.4
MND	4	0.5
Total	825	100

overall disability rate was increased with the contribution of other impairment ratios pertaining to other branches such as especially dementia, Parkinson's disease, epilepsy and CVD. It was also found that there was a slight difference between mean neurological and overall disability rates in polio sequelae and demyelinating diseases, whereas there was no difference in myopathies (Figure 1).

Among the cases with neurological disorders, the most frequent application reason was the request for patient care fee. However, the least frequent application reason was found to be appointment of the disabled. The cause of referring with the highest level of approval (98.7%) was special education and rehabilitation, whereas the causes of referring with the lowest level of approval were appointment of the disabled (17.6%) and request for patient care fee (29%) (Table 4). The most frequent application reasons are presented in Table 5 for each neurological disorder.

Table 4. Application reasons and ratio of approval by the medical committee among cases with neurological disorders

Application Reasons	N	Frequency (%)	Approval Ratio (%)
Patient care fee	455	55.1	29
2022	193	23.4	60.6
SER	77	9.3	98.7
SCT deductions	38	4.6	36.8
Disability level determination	23	2.8	
Other	22	2.7	31.8
Appointment of the disabled	17	2.1	17.6
Total	825	100	

SER: Special education and rehabilitation, SCT: Special consumption tax (excise tax).

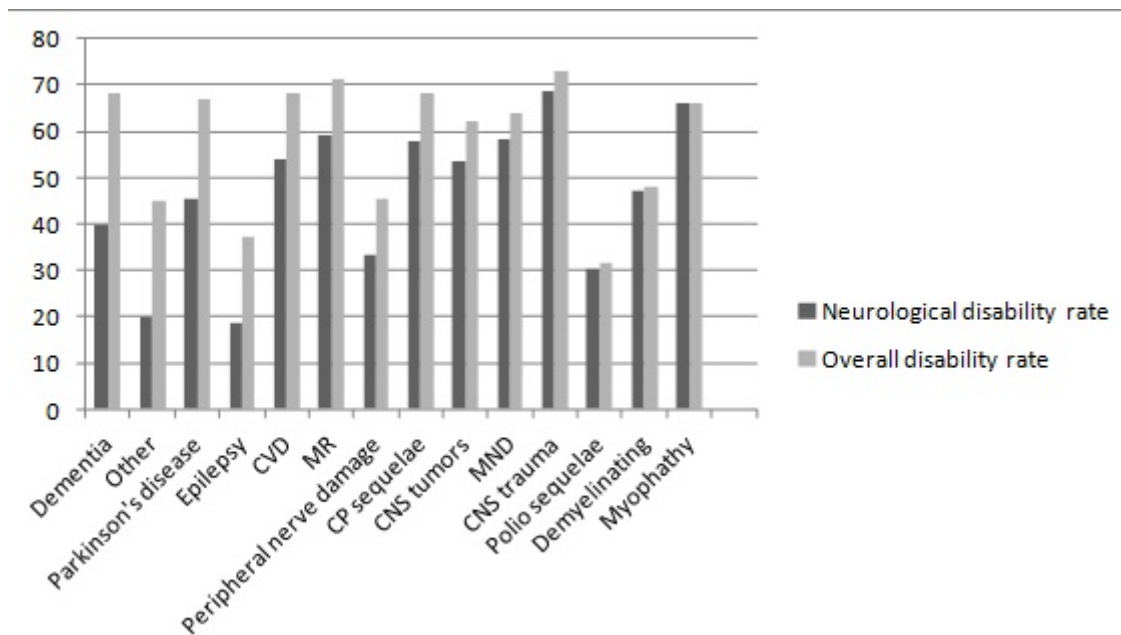


Fig. 1. Neurological disability and overall disability rates.

Table 5. Most frequent application reasons for each neurological disorder

	Most frequent application reason	N	%
Dementia	Patient care fee	157	91.3
CVD	Patient care fee	83	67.5
CP sequelae	SER	50	42.7
Epilepsy	2022	56	47.9
MR	Patient care fee	46	54.1
Other	Patient care fee	23	50
Polio sequelae	Patient care fee	10	25
Peripheral nerve damage	Appointment of the disabled	10	30.3
CNS trauma	2022	11	40.7
Parkinson's disease	Patient care fee	14	70
CNS tumors	Patient care fee	11	73.3
Demyelinating	Patient care fee	4	33.3
Myopathy	Patient care fee	6	50
MND	Patient care fee	2	50
	SCT deductions		

Table 6. Frequencies of postponement decisions for determining the disability ratios in neurological disorders

	N	%
Epilepsy	34	29.1
Parkinson's disease	6	28.6
MR	16	18.8
CNS trauma	5	18.5
CVD	21	17.1
Other	6	13
Dementia	19	11
CNS tumors	1	6.6
CP sequelae	4	3.4
Peripheral nerve damage	1	3

It was seen that 24.97% (n:206) of the cases with neurological disorders were considered to be heavily disabled. Diagnosis of "heavily disabled" was made most frequently due to neurological deficit (78.7%). Number of patients whose disability ratio determination was postponed by neurologists was 118 (14.3%). Considering all diseases, postponement decision was made most frequently for epilepsy, whereas disability rates were determined at the first referring for the cases with MND, polio sequelae, myopathy and demyelinating disease (Table 6).

Discussion

World Health Organization data show that disability ratio is 10% in developed countries and 12% in developing countries (2). A 2002 study by State Statistics Institute (at present Turkish Statistical Institute-TurkStat) showed that the disabled population in Turkey was 12.3% (3). Studies in the literature investigating disability ratios in various cities indicate ratios ranging from 4.9% to 12.7% (4,5,6,7).

Except for the studies investigating overall disability ratio in our country, there are few studies analyzing disability/impairment ratios due to a disease(s) covered by a certain clinical branch, as well as the statuses of these disabled people. A literature review reveals that there are a limited number of studies indicating the frequencies of ophthalmic, ENT, psychiatric and neurological diseases, and impairment ratios in the cases referring to Medical committees for the disabled (8,9,10,11).

Results of our study indicate that frequency of neurological disorders is high among the cases referring to the medical committee. Of all cases who applied to the medical committee of our hospital, 27.2% had neurological disorders. A study in the city of Istanbul found that, following chronic diseases of the internal organs, the musculoskeletal system diseases were the second most frequent cause of referring (5). State Statistics Institute (SSI) data show that chronic diseases of the internal organs is the most frequent cause of disability followed by orthopedic and mental impairments (3). Considering that diseases causing neurological deficit may affect both the musculoskeletal system and the mental functions, it is understandable that neurological disorders are seen frequently in the causes of referring to the medical committee.

Cases applied to the medical committee of our hospital mostly resided in the city of Van. Since our hospital is one of the important healthcare centers of the region, cases from downtown Van as well as all counties and neighboring cities are evaluated and examined by the medical committee of our hospital. From this point of view, we postulate that results of our study are important for the general analysis of the neurologically disabled people of the region and determining their needs and requirements.

Our disabled subjects with neurological disorders consisted of 54.5% males and 45.5% females. In a study by Çabalar et al. (8) in a training and research hospital in the city of Istanbul, neurologically impaired subjects

comprised 56.2% males and 43.8% females showing that the ratios in these two studies are very similar.

Dementia, CVD, CP sequelae and epilepsy were the most frequent application reasons to our health committee. There are limited number of epilepsy prevalence studies carried out in several parts of Turkey. Prevalence varies between 6 and 10 per 1000 (12,13,14). The prevalence of CP is reported as 4.4 per 1000 live births and included postnatally acquired CP in Turkey (15). There are not enough epidemiological researches about CVD in Turkey, so the prevalence of CVD is not clear. Öztürk reported that CVD is the second mortality cause with the rate of 15% and the third cause of disability adjusted life years with the rate of 5.9% (16). In Turkey, dementia is generally perceived as a natural result of aging instead of accepting it as a health problem. It is assumed that the real number of patients with dementia is higher than the recorded ones. Gürvit et al. (17) reported that the prevalence of dementia in Istanbul is 20%. There are not any prevalence studies relating to these neurological disorders in Van city.

Dementia was the most frequent cause of neurological disability in our study. CVDs, which were the most frequent cause of referring in the study by Çabalar et al. (8) were the second most frequent cause of referring in our study. CVDs are followed, respectively, by CP sequelae which is considered to be a significant cause of impairment and by epilepsy which is a frequent neurological disorder. The least frequent cause of neurological disability in our study was MND.

Results of our study indicate that the neurological disease group with the highest mean disability ratio was CNS traumas. It was followed by MR and MND, respectively; epilepsy group had the lowest disability ratio. As systemic diseases accompanied by neurological disorders co-exist with dementia, Parkinson's disease and CVD, it was realized that overall disability ratios increased in these disorders seen frequently in elderly patients. Since epilepsy may also be accompanied especially by mental retardation, overall disability ratio was found to be relatively higher compared to neurological impairment ratio. It was postulated that the slight difference between neurological impairment ratio and overall disability ratio in polio sequelae and demyelinating diseases, and lack of any difference between these ratios in myopathies could be due to emergence of these disorders mostly in youth and their lack of co-morbidity.

A distinctive feature of our study is that number of diseases grouped into "other diseases" was

limited while grouping neurological disorders. MRs except CP sequelae, CNS tumors and traumas and injuries to the peripheral nervous system, which were grouped into the same category by similar studies, were evaluated individually in our study. This allows a more clear determination of frequencies and severities of the pathologies causing neurological impairment.

Considering neurological impairment for each age group, it is seen that 22.3% of all cases diagnosed with neurological disorders were pediatric patients ≤ 10 years of age. Data reviews show that the frequent causes of neurological impairment in this age group were MR, CP sequelae, epilepsy and traumas. In their study, Beşer et al. (4) grouped the causes of disability/impairment as antepartum, at birth and postpartum causes and indicated consanguineous marriage, inheritance, prolonged labor, birth traumas, postpartum diseases, and accidents and injuries as the causes of disability. It may be postulated that disabilities and diseases due to genetic predisposition associated with still existing consanguineous marriages and high birth rate across the region and due to causes at birth are common across the region. Furthermore, it would not be wrong to think that it is hard to protect the children from the diseases and injuries that may develop after the birth (postpartum) in the families with low socio-economic status and a lot of children. We think that more comprehensive and comparative studies on causes of childhood disability in the region are significant for creating statistical data relating to this issue.

Another aim of our study was to review the application reasons to the medical committee. A study investigating the disabled cases referring to a university hospital in the city of Ankara reported that the most frequent application reason was request for special education (6). In our study, however, the most frequent cause of referring among the cases with neurological disorders is the request for patient care fee. It is followed by the request for being covered by Act no. 2022, which allows the holders to get regular payment from the government. Studies investigating disability (4, 5) indicate that disability ratio is higher among the individuals with low income living in rural areas. Considering the extra economic burden to be incurred by the care and rehabilitation of the disabled people on the family's budget and especially the low socio-economic statuses of the local people, this high level of request for patient care fee is understandable.

Considering the frequency of referring for the patient care fee, approval rate was found to be low (29%). An individual must be considered "heavily disabled" by the medical committee in order to take home care services. Relevant regulations issued by the Cabinet defines the "heavily disabled" people as the individuals with a total body function loss ratio above 50% depending on the disability status who are medically determined to have difficulties in or lack the ability of using self-maintenance skills such as eating and drinking, dressing, washing and excreting, as well as difficulties in or lack the ability of moving and communicating on one's own, or to be unable to use these skills without the help of others (1). For epilepsy, patients with frequent seizures under at least two antiepileptic drug therapy; for CP sequelae and CVD, patients who cannot perform daily life physical activities because of their motor and/or cognitive impairment are accepted as "heavily disabled" by the committee. Dementia is diagnosed by clinical and neuroradiological findings and Mini Mental State Examination. Type of dementia was not declared in disability reports. Patients who have moderate or severe cognitive dysfunction are accepted as "heavily disabled".

Patient care fee requests of the patients who are not deemed to be heavily disabled, regardless of their disability ratios, as a result of the medical examination are rejected. However, no additional qualifications are needed except for the overall disability ratio above 40% in order to be covered by the Act no. 2022. The present study shows that 60.6% of the requests to be covered by the Act no. 2022 were approved and that this cause of referring had the highest approval ratio following special education requests.

SSI data showed that unemployment ratio among the disabled across the country was 15.46% (3). The study by Beşer et al. (4) reported the unemployment ratio among the disabled as 66.4% and indicated the restriction of daily activities due to disability, and lack of suitable jobs and non-prioritization of disability employment as the causes of the high unemployment ratio. A study by Seabury et al. (18) with disabled employees found a strong correlation between disability ratio and decrease in the income level and indicated that this is seen most remarkably in spinal cord injuries. Disability ratio required for job applications for disabled people has been prescribed as 40% in the relevant regulations. In our study, cases with polio sequelae and epilepsy were the patient groups with the highest level of referring for appointment of the disabled which were

followed by peripheral nerve damage and CP sequelae. It was realized that disability ratios were these cases are largely below 40% as they were usually in the age group “young” and had no additional diseases; only 17.6% of all the job applications were approved.

Results of our study showed that 24.97% of the cases with neurological diseases were considered to be heavily disabled and neurological deficit had a greater role in the medical committee decision for 78.7% of these cases. Regarding these, it may be suggested that loss of neurological functions substantially prevents the individual from performing the daily activities and is important for deciding whether the individual uses the self-management skills with or without the help of others.

Review of the data show that 14.3% of the cases with neurological disorders were not given a disability ratio at the first application; neurologists postponed the ultimate decision. Causes of postponement include such cases that the patients refer to the medical committee before completion of the required examinations, make outpatient control visits irregularly, do not use any drugs for their diseases or use drugs irregularly. Epilepsy was the disease group with the highest level of postponement decision (29.1%) followed by Parkinson’s disease (28.6). The fact that approximately 1/3 of all patients with epilepsy and Parkinson’s disease refer to the medical committee for disability report even if they are not followed-up and monitored shows the importance of taking anamnesis form the patients who apply to the medical committee. This allows redirection of suitable patients to outpatient clinics and continuation of their disrupted workups and treatments. Since it is expected that motor growth process goes on in pediatric MR cases, it was seen that 18.8% of all MR cases were not rated at the first referring.

Considering decision postponement frequencies, it was seen that MR cases were followed by CNS traumas and CVDs. Although CVD may cause disability, spontaneous recovery may be seen in neurological functions over time and ability to perform daily activities may be regained; rehabilitation is used to reduce the disability level in patients suffering from stroke (19). Our study showed that ultimate decisions relating to cases referring to the medical committee before complete recovery from CVD or similar traumas were postponed to a post-rehabilitation date. An important reason for such cases referring to the medical committee too early for receiving a disability report is that neither patients nor their relatives have sufficient

information about the possibility of recovering, to some extent, of the missing bodily functions with the help of a well organized rehabilitation program, or that they have difficulties accessing these services. An İstanbul study investigating the access (utilization) ratio of the disabled to rehabilitation services revealed that only 8% of the 46.4% rehabilitation requirement could be met (5). If the physicians following up the patients during the acute period gives the required information and guidance services at discharge, number of such cases referring will be reduced.

This study revealed that no neurological disorders were detected in and disability ratios were not given for a significant part of the patients neurologically evaluated by the medical committee. Furthermore, it was revealed that number of cases referring to the medical committee for receiving patient care fee even if they were not considered heavily disabled was substantially high and that a lot of cases referred to the medical committee before the completion of workup and treatment periods. All these caused us to think that requests for social and economic rights and benefits could from time to time outweigh the requests for treatment and rehabilitation. We postulate that it is important to design further studies and projects to raise the awareness of the local people about neurological disease, disabilities they cause and elimination of them.

Disability is an important problem for both of our country and the whole world; however, it is seen that there are few comprehensive studies and little data about this issue. Wade has pointed out the difficulty of designing epidemiological studies about neurological impairment and determining the impairment/disability ratio and suggested that there are no studies allowing comparisons between neurological disorders or geographical settings or temporal (time) comparisons (20).

This study covers only the patients referring to the hospital and requesting to use their legal rights. Even though it does not cover all neurologically disabled people in the region, since the setting of the study was a hospital receiving a significant number of cases referring from everywhere especially within the borders of city of Van, we think that this study is a good example of the regional profile. We believe that similar studies and especially population-based studies to be designed and carried out across the country are important for contributing to the data relating to disability statistics and shaping the healthcare policies.

Van İlindeki Nörolojik Özürlülük Durumunun Değerlendirilmesi

Özet

Amaç: Nörolojik fonksiyon kaybı oluşturan durumlar, kişilerin günlük yaşamlarını etkileyerek özürlülüğe neden olmaktadır. Sağlık hizmetlerinin yönetimi için özürlülük alanında uygun toplanmış verilere ihtiyaç vardır. Bu çalışmada hastanemiz sağlık kurulunda nörolojik açıdan değerlendirilen olguların özürlü sağlık kurulu raporlarının incelenmesi ve elde edilen veriler yoluyla ülkemizdeki özürlülükle ilgili istatistiklere katkıda bulunulması amaçlanmıştır.

Yöntem: 15 Mayıs–15 Kasım 2012 tarihleri arasında sağlık kurulunda nörolojik değerlendirmeden geçen olguların sosyodemografik özellikleri, başvuru sebepleri, nörolojik hastalıkları ve özürlü oranları geriye dönük olarak incelenmiştir.

Bulgular: Hastanemiz sağlık kuruluna başvuran 3034 olgunun 825'inde (%27.2) nörolojik hastalık saptandı. Bunların 450'si (%54.5) erkek, 375'i (%45.5) kadın ve yaş ortalaması 41.8'di. Nörolojik özürlülük saptanan olguların %22.3'ü 10 yaşından küçüktü. Başvuru nedenleri arasında demans (%20.9), serebrovasküler hastalıklar (%14.9), serebral palsi sekeli (%14.3) ve epilepsi (%14.2) ilk sıralarda yer almaktaydı. En sık başvuru sebebinin bakım ücreti talebi (%55.1) olduğu görülürken özel eğitim ve rehabilitasyon için yapılan başvuruların kabul oranının en yüksek (%98.7) olduğu belirlendi.

Sonuç: Ülkemizde nörolojik özürlülükle ilgili yapılan çalışmaların sınırlı sayıda ve verilerin yetersiz olduğu görülmektedir. Bu araştırmanın bölgedeki nörolojik özürlülük nedenleri ve sıklığının anlaşılması açısından iyi bir örnek oluşturduğunu düşünmekteyiz.

Anahtar kelimeler: Sağlık kurulu, nörolojik hastalıklar, nörolojik özürlülük

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