



Evaluation of demographic and clinical characteristics of 166 patients with herpes zoster in the Kırşehir region

Kırşehir yöresinde herpes zosterli 166 hastanın klinik ve demografik özelliklerinin değerlendirilmesi

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Abstract

Background and Design: Herpes zoster (HZ) occurs by reactivation of the latent varicella zoster virus at dorsal root ganglia. In the literature, there are studies on socio-demographic and clinical characteristics of patients with HZ in our country and in the world, however, there has been no study performed in our region. We aimed to evaluate demographic and clinical characteristics of patients with HZ and to investigate differences and similarities with other epidemiological studies in Turkey and in the world.

Materials and Methods: One hundred sixty-six patients clinically diagnosed with HZ by dermatologists between January 2015 and December 2016 and were followed for 3 months in terms of possible complications were included this study. Demographic and clinical characteristics of the patients were recorded.

Results: The mean age of the patients was 51.48±21.05 (1-90) years. Eighty-seven patients were female (52.4%), 79 were male (47.6%). Thirteen patients (7.8%) were in the pediatric age group (<18). The frequency of patient admission was highest in December and lowest in March. The most frequent locations of the lesions were thoracic (76 patients, 45.8%) and lumbar (40 patients, 24.1%) regions. The lesions were on the left side of the body in 96 (57.8%) and right side in 70 (42.2%) patients. The most frequent triggering factor was emotional stress. Post-herpetic neuralgia (27.7%) was the most frequently seen complication. The most common systemic comorbidity was hypertension. Malignancy was present in only 3 patients (1.8%).

Conclusion: Our data were highly comparable with other studies. However, occurrence of HZ mostly during the winter and in the left side of the body was the difference from other studies. We conclude that further country-wide studies with larger number of patients are needed in order to clarify the epidemiological and clinical characteristics of HZ in our country.

Keywords: Epidemiology, herpes zoster, post-herpetic neuralgia, varicella zoster virus

Öz

Amaç: Herpes zoster (HZ) dorsal kök ganglionlarında latent kalan varisella zoster virüsün reaktifte olmasıyla ortaya çıkar. Literatürde ülkemizde ve dünyada HZ'nin sosyo-demografik ve klinik özelliklerini değerlendiren çalışmalar vardı ancak bölgemizde yapılan bir çalışma yoktu. Çalışmamızda HZ tanısı konulan hastaların klinik ve demografik özelliklerini incelemeyi ve Türkiye ve dünyadaki diğer epidemiyolojik çalışmalarla benzerlik ve farklılıklarını araştırmayı amaçladık.

Gereç ve Yöntem: Ocak 2015-Aralık 2016 tarihleri arasında dermatologlar tarafından HZ tanısı konulan 166 hasta çalışmaya dahil edildi ve olası komplikasyonlar açısından 3 ay boyunca takip edildi. Hastaların demografik ve klinik özellikleri kaydedildi.

Bulgular: Hastaların yaşları 1 ile 90 yaş arasında değişmekteydi (ortalama yaş: 51,48±21,05). Hastaların 81'i (%52,4) kadın, 79'u (%47,6) erkekti. Hastaların 13'ü (%7,8) pediatrik yaş grubunda (<18) idi. Hasta başvuruları aralık ayında en yüksek, mart ayında en düşük seviyeyeydi. En sık etkilenen bölgeler torasik (76 hasta, %45,8) ve lumbar (40 hasta, %24,1) idi. Lezyonlar, 96 hastada (%57,8) vücudun sol tarafında, 70 hastada (%42,2) sağ tarafında gözlendi. En sık tetikleyici faktör emosyonel stresdi. En sık görülen komplikasyon postherpetik nevaljiydi (46

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hasta, %27,7). En sık görülen sistemik hastalık hipertansiyondu. Sadece 3 hastada (%1,8) malignite mevcuttu.

Sonuç: Çalışmamızın verileri diğer çalışmalar ile büyük oranda benzerdi. Ancak farklı olarak HZ en fazla kış mevsiminde saptandı ve vücudun sol tarafında tutulum daha sıklıkla. Türkiye’de HZ’nin klinik ve epidemiyolojik özelliklerini açıklığa kavuşturmak için daha fazla sayıda hastayla, ülke genelinde yapılacak çalışmalara ihtiyaç duyulduğunu düşünmekteyiz.

Anahtar Kelimeler: Epidemiyoloji, herpes zoster, postherpetik nevralji, varisella zoster virüs

Introduction

Varicella zoster virus (VZV) causes chickenpox which is the primary infection and then remains latent at dorsal root ganglia or cranial nerve sensory ganglia. VZV reactivation from latency leads to herpes zoster (HZ). HZ typically occurs as painful, group of vesicles on an erythematous base located on dermatomes^{1,2}.

Aim

There are studies on socio-demographic and clinical characteristics of patients with HZ in our country and the world. However, there has been no study in our region. We aimed to investigate socio-demographic and clinical characteristics of patients with HZ and to demonstrate the differences and similarities with other studies.

Materials and Methods

This study was conducted in our dermatology outpatient clinic. We followed the Helsinki Declaration principles and obtained approval from Ahi Evran University Local Ethics Committee (approval number: 2017-09/76, 23.05.2017). All patients gave written informed consent. One hundred sixty-six patients, who received the clinical diagnosis of HZ established by dermatologists between January 2015 and December 2016, were included in this study and were followed for 3 months in terms of possible complications. Patients who refused to participate in the study were excluded. Demographic and clinical characteristics of patients such as age, gender, hospital admission time, location of the lesion, the affected dermatome, triggering factors, accompanying systemic diseases and malignancy, complications, and treatments were recorded. Demographic and clinical characteristics of patients with HZ were evaluated and differences and similarities with other epidemiological studies in Turkey and in the world, were investigated.

Statistical Analysis

IBM SPSS Statistics 21.0 program was used for data analyses. Continuous data were presented as \pm standard deviation. Categorical data was presented in percentage (%).

Results

One hundred sixty-six HZ patients were included in the study. HZ was diagnosed in 0.68% of patients who were admitted during the study period (24125 patients). The mean age of the patients was 51.48 ± 21.05 years (range:1-90 years). Eighty-seven patients were female (52.4%) and 79 were male (47.6%) and the female-to-male ratio was 1.1. While 13 patients (7.8%) were within the pediatric age group (<18), 153 (92.2%) were within the adult age group. Most of the patients, both males and females, were in the 6th and 7th decades of life (Figure 1).

The rate of hospital admission was highest in December (14.5%) and lowest in March (3.0%) (Figure 2). The highest number of patients

was diagnosed in the winter (33.7%) and lowest in spring (16.8%). The most common locations of the lesions were thoracic (45.8%) and lumbar (24.1%) regions in all patients (Table 1). While thoracic (45.1%) and lumbar (25.5%) involvement was the most common in adults, thoracic (53.8%) and lower extremity (15.4%) involvement was the most frequent in the pediatric age group. The rate of involvement of the left and right side of the body was 57.8% and 42.2%, respectively. In female patients, involvement was on the left side in 59.7% and on the right side in 40.3% of them; in male patients, involvement was on the left side in 63.2% and on the right side in 36.7% of them.

The most frequent triggering factor was emotional stress in both adult and pediatric groups. Upper and lower respiratory tract infections, fatigue and surgical operation were the other triggering factors (Table 2).

The most frequent complication was postherpetic neuralgia (PHN) (27.7%). Ophthalmic HZ was observed in 8 adults (5.2%), and 2 of pediatric group (15.4%). All patients with ophthalmic HZ were treated with systemic antiviral treatment, examined by an ophthalmologist and ophthalmic complication was not observed. No other complications,

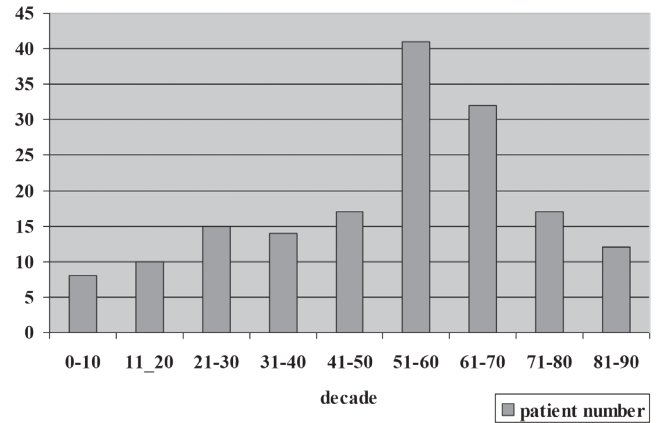


Figure 1. Number of patients according to decades

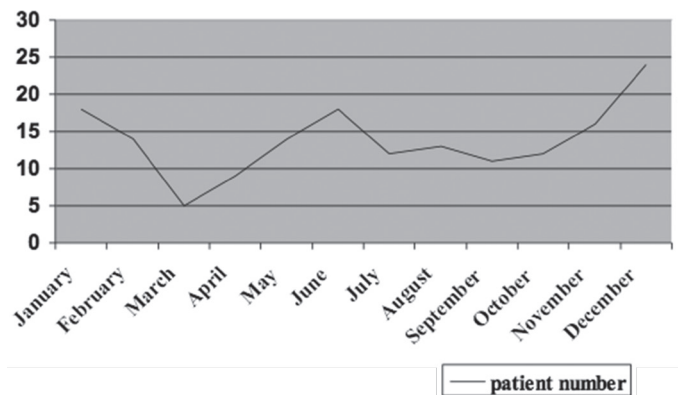


Figure 2. Number of patients according to months

Table 1. Number of patients according to localization of lesions

	n	%
Thoracic	76	45.8
Lumbal	40	24.1
Lower extremity	17	10.2
Upper extremity	15	9.0
Trigeminal	10	6.0
Cervical	5	3.0
Sacral	3	1.8
Total	166	100

Table 2. Trigger factors

	n	%
Emotional stress	35	21.0
Upper respiratory tract infection	19	11.4
Fatigue	18	10.8
Surgical operation	1	0.6
Lower respiratory tract infection	1	0.6
Total	74	44.4

such as disseminated HZ, HZ oticus, and VZV meningitis, were observed in any patient.

In respect of accompanying systemic diseases, at least one systemic disease was present in 54.8% of patients. The most frequently seen systemic diseases were hypertension (HT) (27.1%), diabetes mellitus (DM) (18.1%) and coronary artery disease (CAD) (15.1%) (Table 3). Malignancy was detected in only 3 patients (1.8%); these were breast, lung and stomach cancers. No complication, accompanying systemic disease or malignancy were detected in the pediatric age group.

In respect of treatment, 53% of patients were treated with valacyclovir, 29.5% with brivudine and 2.4% with acyclovir; systemic antiviral treatment was not administered in 15.1% of patients. In pediatric group, 61.5% of patients did not receive systemic antiviral treatment. Only 5 patients with ophthalmic HZ required hospitalization. No drug-related side effect was observed in patients treated with systemic antiviral treatment.

Discussion

HZ occurs by reactivation of VZV remaining latent at dorsal root ganglia following chickenpox at later stage of life and seen as painful vesicular lesions on dermatomes innervated by these ganglia³.

Annual incidence of HZ is 3.2/1000⁴ and 4.97/1000⁵ in the United States and Taiwan, respectively; and studies conducted in our country reported an incidence of 5.6 and 4.3/1000^{6,7}. In our study, HZ was diagnosed in 0.68% of patients admitted during this period (24125 patients) HZ mostly occurs at advanced age. The incidence of HZ increases with age due to decreased humoral and cellular immunity. A study showed that the incidence of HZ increased by aging and it was detected as 5.18/1000, 8.36/1000, 11.09/1000 and 11.77/1000 at 40 to 50 years, 50 to 60 years, 60 to 70 years and over 70 years, respectively⁵. Küçükçakır et al.⁶ showed that 72.1% of patients were

Table 3. Accompanying systemic diseases

	n	%
HT	45	27.1
DM	30	18.0
CAD	25	15.0
Asthma	5	3.0
Hyperlipidemia	5	3.0
Chronic renal failure	5	3.0
Malignancy	3	1.8
Hepatitis B	3	1.8
Hypothyroidism	3	1.8
Epilepsy	3	1.8
Gastritis	2	1.2
Hyperthyroidism	2	1.2
Gilbert	2	1.2
Benign prostatic hypertrophy	2	1.2
Depression	2	1.2
Pregnancy	2	1.2
Hepatosteatois	1	0.6
Chronic obstructive pulmonary disease	1	0.6
Liver cirrhosis	1	0.6

HT: Hypertension, DM: Diabetes mellitus, CAD: Coronary artery disease

over 40 years of age and that most of the patients were in the 6th and 7th decades of life. Similarly, most of the patients in our study were in the 6th and 7th decades of life.

HZ is known to affect equally both sexes and all races³. Certain studies suggested that HZ incidence was remarkably higher in women^{4,5,8-11}. Similarly, in our study, we detected that HZ was more frequent in women. However, there are studies reporting more frequent occurrence in men^{7,12}. The relationship between HZ and sex is not clear. It can be explained by immune system differences between male and females; and it is more likely that the virus becomes more active in the female body than in male^{8,9}.

Zak-Prelch et al.¹² observed HZ more frequently during summer time on sun-exposed areas, while they did not detect any seasonal difference in non-exposed body areas. When all cases were analyzed, the disease was detected most frequently in August. Therefore, they suggested that ultraviolet radiation suppressed cellular immunity in summer and it resulted in increased HZ incidence¹². In large series of studies, HZ was detected mostly in summer and least in winter^{8,13}. A study from our country observed HZ mostly in March and in winter season⁷. In contrast to these studies; we detected that HZ was most frequent in winter, was least frequent in spring compared to the other seasons and HZ was most frequent in December, was least frequent in March compared to the other months. Küçükçakır et al.⁶ indicated that HZ was most frequent in August and January and they suggested that the reason of increased cases in January was suppression of immunity by decreased weather temperature. Further studies with larger number of patients are required in order to demonstrate seasonal difference of HZ in our country.

Lesions are mostly located on dermatomes, unilaterally, without passing the midline in HZ³. Küçükçakır et al.⁶ observed more common involvement on the left side in women and right side in men. Another study did not show any difference between left or right-side involvement in respect of HZ lesion localization⁸. Differently, we detected that involvement was more frequent on the left side in both men and women. The most frequent involvement of HZ was in the thoracic region^{2,3}. Previous studies showed that the most frequent involvements were on thoracic, lumbar, trigeminal and cervical areas^{6,8}. Similarly, the most frequent involvements were on thoracic and lumbar areas in our study. In studies in the pediatric age group, the most frequent involvement was also again in the thoracic region^{6,14-16}. In agreement with the literature, the most frequent involvement was also again in the thoracic region (53.8%) in the pediatric age group in our study.

Stress, fever, sunburn, physical trauma to the spinal cord, radiotherapy, immunosuppressive therapy, cancer, HIV infection, heavy metal intoxication and re-exposure to VZV are among the triggering factors³. Stress and trauma have been reported to be the most common triggers^{7,14}. Chronic psychological stress is considered to facilitate HZ development by reducing cellular immune response¹⁷. We detected stress as the most frequent triggering factor in both adult and pediatric age groups.

PHN is defined as continuation of pain for more than a month on the affected dermatome following improvement of HZ and this is the most frequent complication of HZ. The most important risk factor for PHN is advanced age. The risk of developing PHN has been reported to range from 5% to 30%¹⁸. It has been reported that PHN developed most frequently in patients over 80 years of age¹⁰. Alicino et al.¹¹ reported that PHN was remarkably increased with age and reached to peak at age over 85 years. In their studies from our country, Küçükçakır et al.⁶ and Özkol et al.⁷ reported that the risk of PHN development was 21.75% and 13%, respectively. We detected this rate as 27.7%. The reason for lower PHN rate observed in the second study compared to our study could be lower mean age of patients. PHN is less frequent in the pediatric age group. PHN was not observed in the pediatric age group in studies from our country and other countries^{6,14,16,19}. Similarly, we also did not detect PHN in the pediatric age group.

It is known that HZ is often accompanied by malignancies. Küçükçakır et al.⁶ found malignancy in 3.84% of HZ patients and the disease was not considered to antecede any malignancy. In another study, malignancy was detected in 1.7% of patients²⁰. In our study, a history of malignancy was present in 1.8% and all the cases had been diagnosed with cancer before HZ. In a meta analysis, absolute risk for occurrence of any cancer within 1 year following HZ was 0.7-1.8% and this risk was relatively high for hematological cancers. The authors suggested that HZ could be an indicator for occult cancer, however, the low absolute risk of cancer limits the clinical impact of this study²¹. However, the possibility of malignancy in HZ patients should always be kept in mind and detailed examination should be performed in suspected cases. HZ is rare during childhood. In case of HZ occurrence during childhood, this may indicate more serious conditions such as immunosuppression and malignancy. However, majority of children diagnosed with HZ are healthy in other aspects³. In our study, no malignancy was detected in the pediatric patients.

In the literature, it has been reported that HT, DM, hyperlipidemia and cardiac diseases mostly accompanied by HZ^{6,8,10}. This may show that these conditions could trigger HZ by impairing cellular and humoral immunity⁶. Similarly, in our study, most frequently accompanying diseases were HT, DM and CAD. We consider that the reason can be impairment of cellular and humoral immunity by these conditions as well as frequent occurrence of HZ and these diseases at advanced age. Acyclovir, valacyclovir, famciclovir and brivudin are systemic antiviral drugs used in the treatment of HZ. We found that valacyclovir was the most preferred drug in adults. In this study, systemic antiviral treatment was not administered in some adult patients with mild disease, no pain, and late diagnosis. Routine systemic antiviral treatment is not recommended in healthy children due to mild nature of HZ and rare occurrence of post-herpetic neuralgia³. In our study, the majority of pediatric patients (61.5%) were monitored without systemic treatment; and the most frequently preferred systemic agent was acyclovir. No drug-related side effect was observed in patients treated with systemic antiviral treatment.

Study Limitation

The single-centered design of this study constitutes a limitation of our study.

Conclusion

Our data are highly comparable with other studies. However, occurrence of HZ mostly in winter and left side of the body were the differences between our results and those of other studies. We conclude that further nation-wide studies with higher number of patients are needed in order to clarify the epidemiological and clinical characteristics of HZ in our country.

Ethics

Ethics Committee Approval: Ahi Evran University Local Ethics Committee (approval number: 2017-09/76, 23.05.2017).

Informed Consent: Informed consent form was obtained from all the patients included in this study.

Peer-review: Externally peer-review.

Authorship Contributions

Surgical and Medical Practices: E.A., H.K.E., I.B., E.M.A., Concept: E.A., H.K.E., I.B., E.M.A., Design: E.A., H.K.E., I.B., E.M.A., Data Collection or Processing: E.A., H.K.E., I.B., E.M.A., Analysis or Interpretation: E.A., H.K.E., Literature Search: E.A., Writing: E.A.

Conflict of Interest: No conflict of interest was declared by the authors.

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