



DOI: 10.5505/ajfamed.2024.58077

AJFAMED 2024;7(2):70–73

Evaluation of Zona Zoster Cases

Suzan Şahin,¹ Bülent Kaya,¹ Sedef Başgönül,² Şirin Menekşe,³
 Gülfem Akengin Öcal,¹ Yasemin Nadir⁴

¹Infectious Diseases and Clinical Microbiology Clinic, Dr. Lütfi Kırdar Kartal City Hospital, İstanbul, Türkiye

²Infectious Diseases and Clinical Microbiology Clinic, Acıbadem University, İstanbul, Türkiye

³Infectious Diseases and Clinical Microbiology Clinic, Kartal Koşuyolu Training and Research Hospital, İstanbul, Türkiye

⁴Infectious Diseases and Clinical Microbiology Clinic, Tepecik Training and Research Hospital, İzmir, Türkiye

ABSTRACT

Objectives: This study aimed to describe the overall characteristics, hospitalization symptoms, treatment, and outcome of patients admitted with zona zoster

Methods: In this study, 30 adult patients hospitalized between January 2012 and December 2014 due to zona zoster were evaluated retrospectively. Demographic characteristics, hospitalization symptoms, and treatment of patients of the patients were examined.

Results: Among the 30 patients who followed up with zona zoster, 16 (53.3%) were female and the median age was 57.5 (18.0–87.0) years. Twenty-two (73.3%) patients had comorbidities and 7 (23.3%) patients had hypertension. The most common site of involvement was the head-and-neck region in 14 (46.7%) patients. Twenty-nine (96.7%) patients had lesions along a single dermatome and, fever was detected in 5 (16.7%) patients. The duration of hospital stay was 6.0 (2.0–14.0) days. One (3.3%) patient had persistent pain at the site of the lesion after treatment

Conclusion: Most patients with zona zoster could be treated in primary care. Primary care physicians should be aware of the characteristics of hospitalized patients with zona zoster to better assist with their follow-up.

Keywords: Acyclovir, antiviral, varicella zoster virus



Please cite this article as: Şahin S, Kaya B, Başgönül S, Menekşe Ş, Akengin Öcal G, Nadir Y. Evaluation of Zona Zoster Cases. AJFAMED 2024;7(2):70–73.

Address for correspondence:

Dr. Suzan Şahin. Infectious Diseases and Clinical Microbiology Clinic, Dr. Lütfi Kırdar Kartal City Hospital, İstanbul, Türkiye

Phone: +90 532 559 00 36

E-mail: drsuzansahin@yahoo.com

Received Date: 08.11.2023

Revision Date: 26.01.2024

Accepted Date: 17.08.2024

Published online: 02.09.2024

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INTRODUCTION

Varicella zoster virus is one of the eight herpes group viruses (Human Herpes Virus 3, HHV-3) that cause infection in humans.^[1] It leads to two different clinical presentations chickenpox and zona. Chickenpox is a primary infection and is mostly seen in childhood. Zona zoster, which is a secondary infection, is mostly seen in adulthood and occurs with the reactivation of the latent virus.^[2] The virus, which characteristically becomes latent after primary infection in the dorsal root ganglia, reactivates to cause herpes zoster, a sporadic disease. Herpes zoster or zona zoster occurs on one or two adjacent sensory dermatomes. It is characterized by a unilateral vesicular rash that does not cross the midline of the body, and the appearance of the rash is sufficient for clinical diagnosis.^[1,2] Although it tends to be self-limiting in healthy individuals, it may progress as more severe, vesicular-pustular, and nodular in more than one dermatome in immunocompromised patients.^[3] Post-herpetic

neuralgia may progress with mild complications including skin color changes, hypertrophic or keloid scars, secondary infections or serious complications including acute retinal necrosis, blindness, cerebellar ataxia, Guillain-Barre syndrome, ophthalmic Herpes zoster, Ramsay-Hunt syndrome, meningoencephalitis, stroke, and myocarditis.^[4,5] It can be transmitted by direct contact with patients with shingles or through aerosols from skin lesions to individuals who did not suffer from varicella or who have not been vaccinated. Infectiousness is much less than an individual presenting with chickenpox.^[6] Worldwide, individuals have a 30% chance of having herpes zoster. To reduce the risk of developing post-herpetic neuralgia, vaccination is recommended for individuals over the age of 50, immunocompromised patients over the age of 19 with a high risk of herpes zoster, and susceptible health-care personnel who will care for these patients, and it should be ensured that caregivers are selected from immunized healthcare personnel.^[6-8]

This study aimed to describe the overall characteristics, hospitalization symptoms, treatment, and outcome of patients admitted with zona zoster.

METHOD

In this study, the patients who were hospitalized and followed up between January 2012 and December 2014 and diagnosed with zona zoster based on their symptoms and findings were evaluated retrospectively. Patients over the age of 18, who were diagnosed with shingles in any part of their body and who were followed up inpatient services were included in the study.

Data were obtained from the hospital's record system. Demographic characteristics of the patients such as age, gender, and concomitant diseases were examined. Moreover, the patients were evaluated in terms of laboratory parameters. White blood cell (WBC) count $>11000/\text{mm}^3$ was defined as leukocytosis and $\text{WBC} <4000/\text{mm}^3$ was defined as leukopenia. Lymphocyte count $<1000/\text{mm}^3$ was considered as lymphopenia. Those with a platelet count $<150000/\text{mm}^3$ are considered thrombocytopenia, and those with a hemoglobin value $<12 \text{ mg/dL}$ are considered anemia accepted. Elevated C-reactive protein $>5 \text{ mg/L}$ and elevated creatinine $>0.9 \text{ mg/dL}$ were accepted.

The statistical analysis was performed using the Statistical Package for Social Sciences 21.0 (SPSS Inc., Chicago, IL, USA). The Kolmogorov-Smirnov test was used to analyze the normality of the distribution of parameters. Continuous variables were expressed as median, minimum, and maximum. Besides, categorical variables were expressed as frequency and percentage.

RESULTS

Among the 30 patients who followed up with zona zoster, and the median age was 57.5 (18.0–87.0) years. Twenty-two (73.3%) patients had comorbidities. Patient characteristics and laboratory findings are summarized in Table 1.

Twenty-one (70.0%) of the patients were over 50 years of age. The distribution of patients according to age groups is shown in Figure 1.

The duration of the complaints was 5.0 (1.0–10.0) days, and 5 (16.7%) patients had a fever. Twenty-nine (96.7%) patients had lesions along a single dermatome. Only 1 (3.3%) patient with HIV infection was observed with lesions crossing the midline. The most commonly affected area in our study was the head and neck region including the scalp and eye area on the same side in 5 (16.7%) patients. This was followed by trunk and extremity involvement. Ophthalmic complications such as conjunctivitis, uveitis, episcleritis, keratitis, and retinitis were not observed in patients with periorbital involvement. The distribution of lesions according to the site of involvement is shown in Figure 2.

Table 1. Patient characteristics and laboratory findings

| | n (%) |
|----------------------|-----------|
| Gender | |
| Female | 16 (53.3) |
| Male | 14 (46.7) |
| Comorbidities* | |
| HT | 7 (23.3) |
| Malignancy | 4 (13.3) |
| CRF | 3 (10.0) |
| CHF | 2 (6.7) |
| Asthma bronchial | 2 (6.7) |
| DM | 1 (3.3) |
| Hypothyroidism | 1 (3.3) |
| HIV infection | 1 (3.3) |
| Pregnancy | 1 (3.3) |
| No comorbidity | 8 (26.7) |
| Laboratory Findings* | |
| Leukocytosis | 2 (6.7) |
| Leukopenia | 3 (10.0) |
| Lymphopenia | 6 (20.0) |
| Thrombocytopenia | 9 (30.0) |
| Anemia | 9 (30.0) |
| Elevated CRP | 14 (46.7) |
| Elevated creatinine | 7 (23.3) |

*Multiple options selected.

CHF: Congestive heart failure; CRP: C reactive protein; CRF: Chronic renal failure; DM: Diabetes mellitus; HIV: Human immunodeficiency virus; HT: Hypertension.

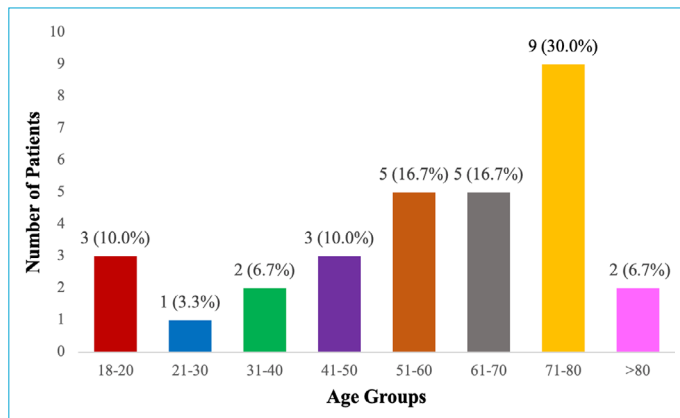


Figure 1. Distribution of patients according to age groups.

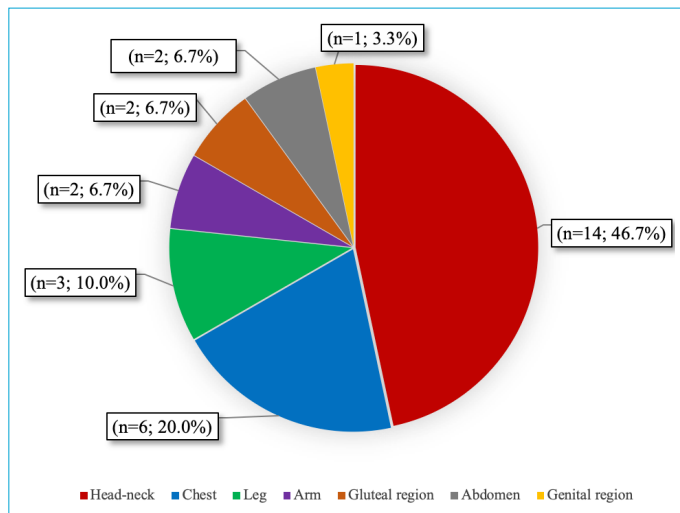


Figure 2. Distribution of lesions according to the site of involvement.

The duration of hospitalization was 6.0 (2.0–14.0) days. All patients received systemic acyclovir (10 mg/kg), paracetamol (10–15 mg/kg), and if required dexamethasone (25 mg) for analgesia. In addition to acyclovir treatment, 3 (10.0%) patients received antibiotic treatment due to skin and soft-tissue infection at the site of the lesions. One (3.3%) patient with gluteal region involvement, soft-tissue infection, and malignancy was hospitalized for a longer time. Renal functions of the patients were monitored during treatment and no acyclovir-induced increase in creatinine values was observed. In one (3.3%) patient, pain in the lesion area (post-herpetic neuralgia) persisted after treatment, while no complications were observed in the other patients.

DISCUSSION

Zona zoster is characteristically presented as painful vesicles on an erythematous background, often along a dermatome, not crossing the midline. The most affected dermatomes include thoracic (55%), cranial (20%, most

commonly involving the trigeminal nerve), lumbar (15%), and sacral (5%) regions.^[1] Hospitalization is not indicated in all patients and, it is indicated in patients with head-and-neck involvement and immunodeficiency. Pregnancy is also a physiologic immunodeficiency state.

Pain begins in the affected area 1 to several days before the skin rash.^[5] Sometimes, the pain may occur simultaneously with or after the rash, or the rash may be painless.^[9] The incidence of zona increases in conditions such as malignancies, being an organ transplant recipient, the presence of autoimmune disease, presence of a disease causing cellular immune deficiency such as HIV infection, female gender, and advanced age.^[5,9,10] Seventy percentages of our patients were over 50 years of age and were mostly female. In different studies, lesions are frequently seen in the thoracic region, but in our study, the most frequently affected region was the head-and-neck region.^[11-13] Ophthalmic complications such as conjunctivitis, uveitis, episcleritis, keratitis, or retinitis were not observed in any of the patients in this study. Clinical manifestations are usually acute pain and vesicular rash. Important systemic symptoms such as headache, fever, malaise, or fatigue are observed in <20% of patients.^[14] Fever was detected in 5 (16.7%) of our patients.

Nucleoside analogs such as acyclovir, valacyclovir, and famciclovir are the antiviral drugs of choice for the treatment of herpes zoster. Valacyclovir and famciclovir are highly bioavailable agents suitable for oral use.^[15] Acyclovir is available in oral and intravenous forms and is preferred in pregnancy. Acyclovir may cause nephrotoxicity, close monitoring of renal function and plenty of hydration should be recommended. All patients were treated with acyclovir in this study and, no acyclovir-induced increase in creatinine values was observed.

Secondary bacterial infections due to both *Staphylococcus* and *Streptococcus* may rarely occur in the lesion area.^[16] Antibiotics should be added to the treatment if there is increased erythema, temperature, or purulent discharge around the lesion. In 3 (10.0%) patients, antibiotic treatment was given in addition to antiviral treatment since skin and soft-tissue infections developed in the same region.

Post-herpetic neuralgia is one of the most important complications in patients with zona zoster. Although the lesions in the area of involvement regress, the complaint of pain may persist.^[17] The complaint of pain may resolve in 1 month or it may persist for more than 3 months and become chronic.^[18] In only one (3.3%) of our patients, the pain persisted despite the regression of the lesions.

This study has several limitations. It was performed at a single center. The number of inpatient cases was low. As

it was a retrospective study, the vaccination status of the patients could not be questioned. The diagnosis was made only by clinical findings, no laboratory confirmation could be made.

CONCLUSION

Zona zoster is a viral eruptive disease that usually occurs in a single dermatome, but rarely in multiple dermatomes. Most patients with zona zoster could be treated in primary care. Primary care physicians should be aware of the characteristics of hospitalized patients with zona zoster to better assist with their follow-up.

Disclosures

Peer-review: Externally peer-reviewed.

Conflict of Interest: There is no conflict of interest.

Funding: There is no funding

Ethics Committee Approval: Clinical Research Ethics Committee of Dr. Lütfi Kırdar Kartal City Hospital approved this study (Approval date: October 11, 2023, Approval number: 2023/514/259/1). Since the data of the patients were analyzed retrospectively from the hospital automation system, patient consent was not obtained. The study was conducted following the principles of the Helsinki Declaration.

Authorship Contributions: Concept – S.Ş., B.K.; Design – S.Ş., G.A.Ö.; Supervision – S.Ş., Ş.M.; Materials – S.B., Y.N.; Data collection and/or processing – S.Ş., B.K., G.A.Ö.; Analysis and/or interpretation – S.Ş., S.B., Ş.M.; Literature search – S.Ş., Y.N.; Writing – S.Ş., B.K., G.A.Ö.; Critical review – S.Ş., G.A.Ö.

Acknowledgement: The authors thank Dr. Raşit Serdar Özer as Infectious Disease and Clinical Microbiology Department Chief during the study period.

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