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## **EVALUATION OF PATIENTS DIAGNOSED WITH HERPES ZOSTER IN EMERGENCY DEPARTMENTS**

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**ABSTRACT:** Objective: Herpes Zoster is a disease that can interfere with the symptoms of lethal diseases in emergency departments and can be easily managed in emergency departments. The aim of this study is to evaluate the incidence of herpes zoster and the prognosis in the emergency department and to compare with other epidemiological studies in our world and in the world. Materials and Methods: The study was carried out cross-sectional and retrospectively with patients who were diagnosed as Herpes Zoster between 01.06.2016-01.09.2016 in the department of emergency medicine. The level of significance was accepted as  $p < 0.05$  in 95% confidence interval. Results: 35 patients were diagnosed with Herpes Zoster within 3 months (June, July, August) and 57.1% of them were seen in July. At the same time, the rate of herpes zoster patients in emergency dermatological patients was 1.17%, which was found to be 0.02% in all emergency patients. The mean age of the patients was  $42,45 \pm 14,32$  (min: 18, max: 74) and the maximum diagnosis (%37,1) was in the range of 36-44 years, 65.7% of the patients were male. 54.3% of these lesions were observed in the thoracic dermatomic region. 85.7% of the patients recovered without any complications with the treatment which was given by emergency medicine physician. Conclusion: Herpes Zoster disease is a dermatologic emergency which the diagnosis and treatment process is usually completed in emergency, which should be taken into consideration in the differential diagnosis of lethal emergency diseases due to the location of the pain.

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**KEYWORDS:** dermatomes, emergency department, herpes zoster, shingles, zoster disease.

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## 1. INTRODUCTION

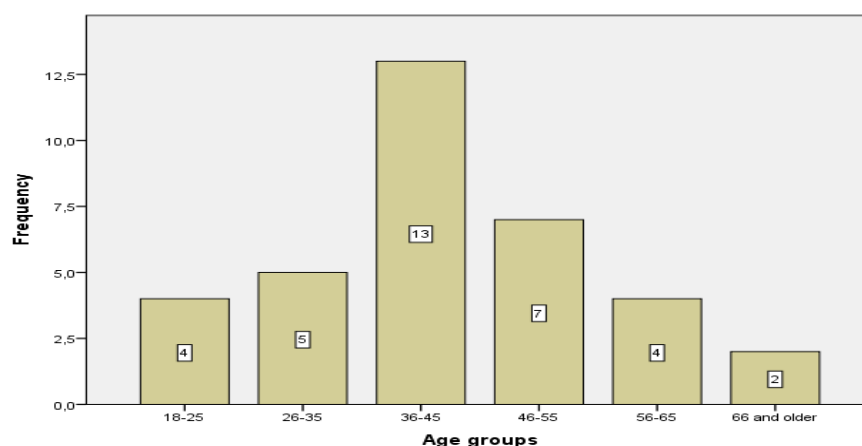
Herpes Zoster, also known as shingles, is a dermatological emergency characterized by painful and vesicular lesions, typically involving dermatomal regions of one or more adjacent sensory nerves. It is also an infectious disease caused by Varicella Zoster Virus (VZV) [1, 2, 3, 4, 5]. The virus remains latent in the sensory dorsal root ganglion after being infused with chicken pox which is from infectious diseases of childhood [6]. The disease heals without sequelae in healthy ones. However, as the age progresses, it is caused by reactivation of the latent virus, depending on the decline in immunity or in cases of trauma, stress, chronic diseases (lung, kidney, inflammatory bowel disease) or when the immune system weakens [2, 7, 8]. For this reason, although it may occur at any age, it is more common in adults over 50 years of age [9,10]. Herpes Zoster is diagnosed with clinical signs. Although some laboratory tests are known to support the diagnosis, there is no need for a laboratory to diagnose the Herpes Zoster [11]. Herpes Zoster causes severe pain in the dermatome for 48-72 hours before the typical rash occurs [12,13]. This pain may mimic headache, iritis, pleurisy, brachial neuritis, sciatica, heart pain, appendicitis or other intraabdominal disease [14]. Even if it is less often, severe itching is the other most common symptom of Herpes Zoster. The eruptive maculopapular lesions quickly turn into a vesicular structure [12]. Then it is diagnosed with classic prodromal pain-burning and typical shingles rashes [15]. These lesions begin to disappear within 10 to 15 days and heal completely within a month [14]. The purpose of this study is to determine the incidence of the Herpes Zoster in the emergency department, which can interfere with the symptoms of the terminal illness, and to increase the awareness of emergency medicine physicians about emergency management and prognosis by comparing them with other studies in our country and around the world.

## 2. MATERIALS AND METHODS

This study is a descriptive and cross-sectional study carried out between 01.06.2016-01.09.2016 in the Department of Emergency Medicine of Kanuni Sultan Süleyman Education and Research Hospital retrospectively. The age, gender, date and time of admission, complaints of admission, dermatome of the lesion, additional diseases, medication use, hospital application and clinical outcome one month before and one month after admission to emergency department was obtained via case forms. Patients with missing files and information in the hospital information system were not taken to work. Statistical analysis was performed using the NCSS program (2007, Kaysville, Utah, USA) and the level of significance was accepted as  $p < 0,05$  in 95% confidence interval.

### 3. RESULTS AND DISCUSSION

During the 3-month period (June, July, August) of 2016 in our emergency department, 18 patients were diagnosed with Herpes-Zoster. It was observed that the highest number of applicants in the following months was in July at 57.1%. At the same time, rate of herpes zoster patients in emergency dermatologic patients was 1.17% and this rate was found as 0.02% in all patients in emergency department. 65.7% of the patients who were diagnosed as Herpes Zoster were male. The mean age of the patients was  $42,45 \pm 14,32$  (min: 18, max: 74), the highest rate was found in the range of 36-45 age (37,1%) (Fig. 1)



**Figure 1: Age groups of patients diagnosed with herpes-zoster in the emergency department**

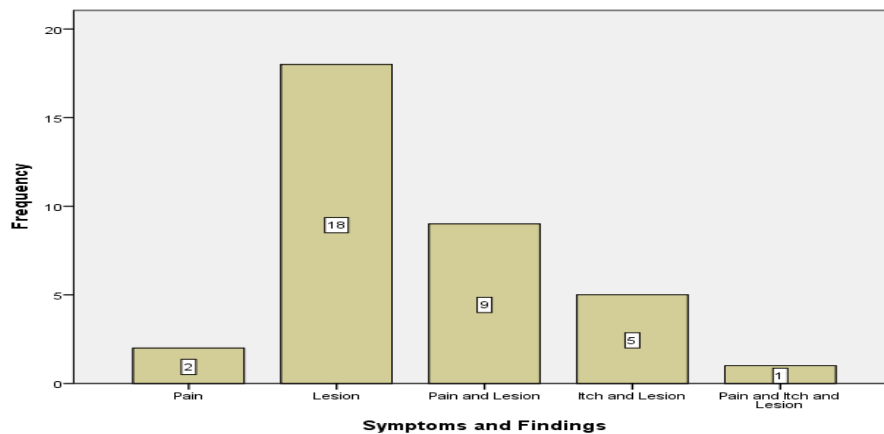
None of the patients were on medication due to any illness. Two patients had a history of COPD (Chronic Obstructive Pulmonary Disease) and 94.3% had no additional disease.

In the first emergency department admission, there were skin lesions that caused to put Herpes Zoster as a pre-diagnosis in 94.3% of the patients (Fig. 2), 34.3% of the patients had pain and 17.1% of the patients complained of itching. Of the patients, 51.4% were admitted to the emergency department with skin lesions only, 42.9% of the patients had lesions and other symptoms (25.7% pain and lesion, 14.3% itching and lesion, 2.9% pain and lesion) had applied to the emergency department.

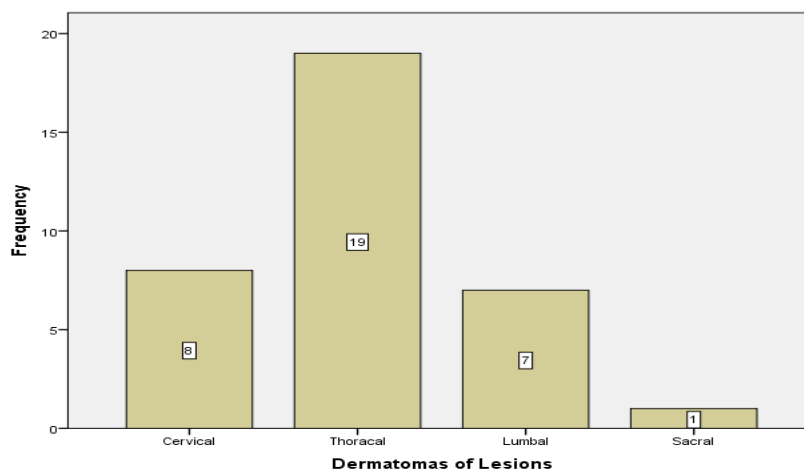


**Figure 2: A 39-year-old male patient diagnosed Herpes Zoster with lesions in his right scapula**

Two patients who presented with pain symptoms without lesions on the first visit were diagnosed with a Herpes Zoster lesion on the second visit within 10 days (Fig. 3). The most lesions (54.3%) were observed in the thoracic dermatomic region of the patients (Fig. 4).



**Figure 3: Symptoms and findings of patients who was diagnosed Herpes-Zoster in the emergency department**



**Figure 4: Dermatonic regions of lesions in patients who was diagnosed Herpes Zoster in emergency department**

All of the patients (%100) did not require any hospital admission and they were discharged from emergency department with medical treatment. After emergency treatment, 85.7% of the patients were recovering without any complication and without consultation of dermatology, 5 patients applied to the dermatology polyclinic for control within 1 month. There was no statistically significant difference between affected dermatomic regions (cervical, thoracic, lumbar and sacral), symptom and findings (pain, itching and lesion) and gender ( $p > 0,05$ ). Again, There was no significant difference between gender and symptoms-findings ( $p > 0,05$ ). The incidence rate of Herpes Zoster varies between 3-5 / 1000 people per year in North America, Europe and Asia Pacific with prospective observation, examination of electronic medical records and datas [16]. The

incidence of HZ has been on the rise recently and it was 3.1/1000 per year in 2000, it increased to 5.2/1000 per year in 2007 in USA. The reason for this increase is not clearly known [17,18]. Despite being one of the dermatologic urgent cases, the number of studies in the emergency departments related to Herpes Zoster is very small. Studies on the number and incidence of emergency applications of Herpes Zoster in our country are also insufficient. In this study, the percentage of all patients who applied to emergency departments within 3 months was found to be 0.02%. One of the factors affecting the incidence of herpes zoster is older age. The incidence of Herpes Zoster increases relevantly among patients aged 50–60 [19, 20]. In a study conducted by Yawn et al., 2/3 of herpes zoster cases were found to be over 50 years of age [21]. In a study conducted by Nazik and his colleagues in our country, 71.1% of the cases were found to be over 50 years old [2]. However, unlike the literature, in our study, it was found that only 25.7% of the patients were older than 50 years, and the majority of the patients were between 36-45 years of age. Again, the majority of herpes zoster (65.7%) cases were men in our study as in other studies (Nazik et al. [2] and Özkol et al. [22] in our country (55% and 59.1%). In some studies in the literature, a significant relationship was found between the sun rays and the occurrence of the disease. In the study of Küçükçakır and colleagues, 11.2% of the cases were observed in August, and it was stated that UV radiation could be the cause of suppression of cellular immunity in August [23]. In our study involving summer months, it was determined that the highest application was in July (57.1%) It is not appropriate to make any conclusions about the relationship between this data and sunlight. There is a need for longer and more extensive work on seasonal differences and the effect of sunlight. Küçükçakır and his colleagues found that Herpes Zoster was followed by the most commonly hypertension, then diabetes mellitus and heart diseases. The relationship between cardiovascular diseases and depression, the negative impact of the quality of life of hypertension, and the immunological effects of chronic stressors were held responsible from this situation [23]. In our study, only two patients had COPD, and 94.3% of the patients did not have any accompanying disease. The fact that the patients who are diagnosed with Herpes Zoster in our study is younger and healthier than the literature suggests that they may have other causes besides the elderly and comorbid diseases leading to immunosystem deficiencies that are the basis for the disease and it should be investigated in more detail. Herpes zoster is diagnosed with typical skin lesions and clinic. Although some laboratory tests are known to support the diagnosis, there is no need to refer to the laboratory for the diagnosis of HZ. Thus, both an invasive procedure and the additional cost can be avoided [11]. 94.3% of our patients had typical Herpes Zoster skin lesions (itchy vesicles) in the first appeal. For only 2 patients, there was pain without lesion in the first appeal and they had typical lesions in the second appeal within 10 days. Herpes Zoster with pain, paresthesia and rash can hold different dermatomes in human body [22]. The most common dermatomes of the herpes zoster were found to be thoracic with 48.3-53%, the others were 20% cervical (usually C2, 3, 4), 15% ophthalmic (trigeminal nerve),

11% lumbosacral region and for 1% of patients, it seems to be more generalized as a reflection [2,24,25]. In our study, the most common dermatomes (54.3%) were thoracic regions. Chest pain complaints in emergency departments may be due to life-threatening causes such as acute coronary syndrome, aortic dissection, pulmonary embolism, tension pneumothorax, pericardial tamponade, mediastinitis, esophagus rupture, as well as disturbances such as gastrointestinal, musculoskeletal disorders and causticondritis [25]. In the United States, cardiac-induced chest pain accounts for about 3% of urgent complaints [25]. Pain is a common symptom in Herpes Zoster patients and is one of the most common causes of appeals due to Herpes Zoster [26,27]. In our study, similar to the literature, 34.3% of the patients had pain symptoms, and the most common dermatomes were in the thoracic region with severe chest pain. Because the most common dermatome of Herpes Zoster is the thoracic region [28,29,30], these pain in patients with only pain without lesions can often be confused with lethal diseases that are the cause of serious chest pain. Therefore, patients referred to emergency departments due to chest pain should be considered carefully in terms of severity of pain, character and spread, and should be considered in Herpes Zoster, which is a disease that should be kept in mind for differential diagnosis. However, in the literature, it is also seen that the underlying cardiovascular disease is accompanied by herpes zoster disease [23]. Therefore, it should be kept in mind that even if there is a lesion in the thoracic region that complies with dermatome related pain, there may be a fatal cardiovascular pathology with Herpes Zoster in patients with risk factors.

#### **4. CONCLUSION**

Herpes Zoster is a disease that can interfere with the symptoms of lethal diseases in emergency departments and can be easily managed in emergency departments. Without the lesions, patients can apply to the emergency department only with pain. After the diagnoses that may be fatal to the emergency department have been ruled out, Herpes Zoster should always be included in differential diagnoses, especially in adult patients and symptoms that fit the thorax region.

#### **ACKNOWLEDGEMENT**

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#### **CONFLICT OF INTEREST**

The authors have no conflict of interest to declare.

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