CLINICAL-EPIDEMIOLOGICAL TRENDS OF HERPES ZOSTER: A 5-YEAR STUDY

Daciana Elena Brănișteanu¹, Gabriela Stoleriu¹, A. Oanța², Carmen Mihaela Dorobăț³, F.D. Petrariu¹, Daniela Mihaela Anchidin⁶, Florina Mihaela Filip Ciubotaru⁴, D.C. Brănișteanu⁵
University of Medicine and Pharmacy “Grigore T. Popa” – Iași
Faculty of Medicine
1. Discipline of Dermatology
2. Discipline of Infectious Diseases
3. Discipline of Hygiene-Environmental Health
4. Discipline of Family Medicine
5. Discipline of Ophthalmology
6. Ph.D. student
University of Medicine “Transilvania” - Brașov
Faculty of Medicine
7. Discipline of Dermatology
*Corresponding author. E-mail: stoleriugabriela@yahoo.com

CLINICAL-EPIDEMIOLOGICAL TRENDS OF HERPES ZOSTER: A 5-YEAR STUDY (Abstract): Herpes zoster (shingles) is a neurocutaneous viral disease, in recent years its incidence increasing throughout the world. **Aim**: To study the incidence of herpes zoster among Iași county patients requiring hospital admission and to analyze the clinical and epidemiological features and socioeconomic status of the study group. **Material and methods**: Retrospective study of 158 patients admitted to the largest clinical dermatology department in North-eastern Romania, the Clinical Dermatology Department of the Iași "Sf. Spiridon" University Emergency Hospital. The study was conducted over a period of five years and included the analysis of epidemiological data, socioeconomic status, clinical forms of disease, associated diseases, pathology reports for skin biopsy fragments, administered treatment, and disease course. **Results**: This study confirms that shingles is not a sex-specific disease, the female/male ratio being 1.22: 1. Most patients belonged to the age group 70-80 years, accounting for about 35% of all patients, followed by the age group 60-70 years (24.6% of cases). A slight increase in the number of cases was recorded in autumn and summer in patients living in rural areas. 1.3% of the cases were diagnosed both with the disseminated form of disease, and complications (eczematization, bacterial suprination, skin necrosis). 7.6% of patients presented additional skin disorders (pityriasis versicolor, impetigo, psoriasis vulgaris, mucocutaneous candidiasis), which raised the suspicion of an immune deficiency predisposing to shingles. The absence or late initiation of specific antiviral therapy correlated with prolonged hospital stay up to 4-6 days. We found an association between the erythematous form of shingles and young age, while the hemorrhagic or necrotic forms were present in the elderly and/or ill patients. The course was favorable and the length of illness was significantly shortened when the treatment adequate to the clinical form was administered. Associated comorbidities (essential hypertension 38.6%, dyslipidemia 24.6%, diabetes, mellitus 9.49%, chronic venous disease, other skin diseases) represent a factor complicating the development of herpes zoster by the cumulative stress the body is exposed to. **Conclusions**: The main statistically significant epidemiological data in the study group are: older age (over 60 years), associated diseases (which by the marked imbalances induced in the body increase the risk of varicella zoster virus reactivation) intense psychological stress. The following parameters did not change the risk of developing shingles: area of origin, sex, the season at disease onset, number of hospital days, and administered treatment. Early diagnosis and treatment of this disease is important for maintaining a good quality of life, to avoid complications, to limit the extent of the disease and its transmission to others. **Keywords**: HERPES ZOSTER, VARICELLA, IMMUNOSUPPRESSION.
Herpes zoster (shingles) is a neurocutaneous viral disease, being an acute viral infection of the skin caused by the reactivation of varicella zoster virus that has remained latent within the dorsal root and cranial nerve ganglia (1). Shingles often manifests decades after the primary infection (chickenpox), and occurs by virus reactivation and its spread to other mucosal skin surfaces through centrifugal migration. The factors triggering the reactivation of the dormant virus are not exactly known, but it is believed that reexposure to the virus, acute or chronic infectious diseases, neoplastic processes, some medications, and emotional stress play an important role. Immunocompromise increases the risk of virus reactivation, meaning that the incidence of shingles increases with aging and immunosuppression (2).

The incidence of shingles is of approximately 3.4‰ per year in the general population, increasing to 11.8‰ per year in the population over 85 years. In recent years, the frequency of this viral manifestation is increasing; it is a true public health concern since a good quality of life, avoidance of severe complications and limiting disease extension and its spread to other family members or entourage depend on early diagnosis and correct treatment of this disease (3).

The disease occurs sporadically throughout the year in all races and affects both sexes equally (6). The incidence is low in the early years of life, except for young people diagnosed with AIDS, lymphoma or other malignancies, and after bone marrow transplantation. Less than 10% of shingles patients are younger than 20 years and only 5% younger than 15 years (4, 7).

In the general population, the incidence rate is 10-20%, but increase to 50% in those who reach age 85 (8). After FDA approved the herpes zoster vaccine in 2006, a study of 38,000 adults aged over 60 years showed a decrease in the incidence of herpes zoster by 51.5% (2, 5).

The studies conducted in Romania show a sudden increase in the number of shingles cases in children aged 10-12 years (9, 10).

The aim of this study was to investigate the herpes zoster cases recorded over a 5-year period from epidemiological, clinical, therapeutic and socioeconomic status point of view.

**MATERIAL AND METHODS**

This study is a retrospective analysis of all cases diagnosed with herpes zoster at the Dermatology Department of "Sf. Spiridon" University Emergency Hospital during 2008-2013. The study group included 158 patients, 71 males and 87 females, aged 9 to 92 years. The medical records, patient photographs, and the histopathology reports for skin biopsy fragments were used. Epidemiological data, such as age, sex, area of origin, socioeconomic status, time of year when the disease occurred, and data related to the clinical form of herpes zoster, associated diseases, pathology reports, administered treatment and disease course were also reviewed.

**RESULTS**

Of all patients admitted in the interval 2008-2013 we selected a group of 158 patients with either typical signs and symptoms of various forms of herpes zoster (fig. 1) or with a totally atypical clinical picture.

Most patients presented a form of herpes zoster accompanied by neurological symptoms (56.3%). Of all patients, 29.1% developed a typical simple herpes zoster, and 1.3% were diagnosed with disseminated herpes zoster and complications (eczematiza-
tion, bacterial superinfection, skin necrosis).

Ophthalmic herpes zoster was diagnosed in 12% of cases, half of them complicated by herpetic keratitis or uveitis (fig. 2).

This study confirms that shingles is not a sex-specific disease. The statistical analysis of this study group showed that the balance is slightly tilted towards females (87 vs. 71), female/male ratio 1.22: 1.

By calculating patient age at the time of herpes zoster diagnosis, we found that most patients belonged to age group 70-80 years, accounting for approximately 35% of patients, followed by age group 60-70 years (24.6%) (fig. 3).

Of the 3% of patients under 20 years of age, a group of children aged 10-12 years, living in urban areas, without organ abnormalities or laboratory documented immunosuppression, but under severe mental stress, as declared by them and their parents, due to intense preparation for the 5th grade entrance exam stood out (fig. 4).

Although shingles occurs sporadically throughout the year, a slight increase in the number of cases in the autumn and summer compared to other seasons was noticed. This can be explained by the direct effect on health of weather variations, especially in the case of an elderly patient, with weakened immune system, living in a rural area where physical work is more intense during summer and autumn.

![Fig. 1. Herpes zoster in the left intercostal zone](image1)

![Fig. 2. Herpes zoster ophthalmicus](image2)

![Fig. 3. Age distribution of the study group](image3)
In our study group there was a slight predominance of shingles patients coming from rural areas (53%) compared to urban areas (47% of cases).

Immunocompromised patients have a 20-100 fold higher risk of developing herpes zoster compared to the immunocompetent patients of the same age. In the study group and 7.6% of the patients also presented other skin problems (pityriasis versicolor, impetigo, psoriasis vulgaris, mucocutaneous Candida infections), which raised the suspicion of an immune deficiency predisposing to shingles.

Associated diseases are an additional stress to the body, thus making it vulnerable to reactivation of varicella zoster virus. In our study group, the most common associated disease was essential hypertension (38.6%), followed by dyslipidemia (24.6%) and diabetes mellitus (9.49%).

The average duration of herpes zoster was 10-15 days, but it took as long as a month before the skin cleared completely. In our study group hospital stay ranged between 2 and 18 days, depending on patient status upon admission, associated diseases and course under treatment (fig. 5).

The administered treatment had an overwhelming influence on disease progression, but of great importance was the time of treatment initiation from the onset of symptoms. 83.5% of patients received full topical and systemic treatment (antiviral, antiinflammatory, analgesic, group B vitamins, ± antibiotics), but some patients...
(16.5%) received no etiological treatment. Absence or late initiation of specific antiviral therapy may be correlated with prolonged hospital stay; our patients were hospitalized for a period ranging from 6 to 18 days, average 12.3 days. At the opposite pole were the patients treated correctly and on time, who were hospitalized for 2 to 12 days, average 8.1 days.

Skin biopsy followed by histopathology of skin fragments were necessary in only 3 cases for making a positive diagnosis of certainty: 1) an oligosymptomatic case with only 2-3 clusters of blisters on the dorsal and lateral external aspect of the right hand, with multiple relapses over the last 3 years (at 3-4 month intervals) that had to be differentiated from zosteriform herpes; 2) a case of eczematized shingles with atypical appearance, clusters of blisters on a poorly-defined erythematous plaque, with irregular, crumbling margins; 3) a case presenting blisters erupting in clusters, on an erythematous base, disseminated, accompanied by discrete symptoms in a young immunocompetent patients without any other disorders.

The study group included patients aged 9 to 92 years. Retrospectively, we found an association between the erythematous form of shingles herpes and young immunocompetent patients. Other associations were found between the hemorrhagic form and elderly and ill patients and between elderly ill or immunocompromised patients and necrotic shingles.

Under optimal treatment (started on time and correctly conducted) the occurrence of new clinical elements was prevented, with healing without sequels in some cases and acromial and atrophic scars in other cases. In our study group, 97.47% were discharged "improved", 2.53% "cured", none “stationary” or “deceased”.

**DISCUSSION**

Age distribution of the patients in our study group is similar to data reported in Europe, being slightly deflected to the right, as most patients were over 60 years of age.

Also, there was a statically insignificant predominance of female patients (55% vs. 45%). Rural/urban distribution of cases was balanced, with a slight increase in the number of rural cases (53%).

Given the limitations of a retrospective study, we can conclude that the associated diseases (essential hypertension 38.6%, dyslipidemia 24.6%, diabetes mellitus 9.49%, chronic venous disease, other skin diseases) are a factor complicating the course of herpes zoster, by the cumulative stress the body is exposed to.

Most cases of herpes zoster were accompanied by neurological symptoms (56.3%), followed by the simple classical form (29.1%) and ocular shingles (12%).

Also, an association between herpes zoster erythematous form and young patients was noted. Hemorrhagic and necrotic forms were present in the elderly and ill patients.

**CONCLUSIONS**

The main statistically significant epidemiological data related to herpes zoster in the study group are: older age (over 60 years), associated diseases (which by the marked imbalances induced in the body increase the risk of varicella zoster virus reactivation), and intense psychological stress. No significant change in the risk of developing shingles was found in relation with the following parameters: area of origin, sex, season at disease onset, length of hospital stay, and administered treatment.

Herpes zoster is a disease that was ig-
nored by patients for hours or days after its onset or was incorrectly diagnosed in the prodromal stage, pain preceding the appearance of skin lesions. Early diagnosis and immediate initiation of specific antiviral therapy are essential for a good quality of life and for avoiding the complications and limiting the extent of disease and its transmission to others. To this end, we suggest a thorough history and physical treatment is preventing post herpetic neuralgia. Additional diagnostic tests such as skin lesion biopsy and histopathology or PCR may be useful in atypical cases.

REFERENCES