

HERPES ZOSTER

Name of Student

Course

Name of Professor

University

Date

## Outline

- I. Introduction
- II. Etiology
- III. Pathogenesis
- IV. Clinical Manifestations
- V. Diagnosis
- VI. Treatment
- VII. Conclusion

## Herpes Zoster

Herpes Zoster belongs to the group of sporadic diseases that appear when the latent varicella virus is activated by internal and external triggers. This illness is characterized by inflammation of the posterior roots of the spinal cord and intervertebral ganglia (Ferri, 2014). In addition, individuals may experience fever, intoxication, and a vesicular exanthema. The purpose of this paper is to analyze the etiology and pathogenesis of the disease, as well as to determine its course of treatment.

### Etiology

Scientists proved the infectious genesis of this disease through clinical data in the 19th century. They determined that Herpes Zoster was accompanied by an increase in body temperature, cyclic flow, and infectious nature (more than one person with the virus in a family). As scientists have investigated, Varicella Zoster belongs to the group of DNA-containing viruses, and its size is approximately 120-250 microns (Cohen *et al.*, 2013). The virion of this pathogen consists of DNA with a protein coat (the virion can contain up to 30 proteins). The reproduction begins in the nucleus and is neutralized by the serum of the convalescent (Cohen *et al.*, 2013). It is crucial to note that serums obtained during the acute period have the greatest activity, which may be because this virus is a secondary manifestation of chicken pox. Moreover, at present, it is believed that varicella causes this condition.

### Pathogenesis

After assessing the nervous system of patients suffering from the virus and carrying out pathomorphological and virological studies, scientists came to a conclusion that Herpes Zoster infection was widely disseminated in the human body (Kuchar *et al.*,

2016). Not only the spinal and cerebral ganglia are involved in the process but also the substance of the spinal cord and brain. In addition, the shells of the brain are also affected. When the spinal cord is infected, both the posterior and the anterior horns are damaged.

In addition, the virus can be found in saliva, tear fluid, and other secretions of the mucous membranes. This manifestation of the disease allows concluding that Herpes Zoster can infect parasympathetic effector cells and penetrate directly into the skin, and when entering the nervous system, the virus localizes within the peripheral sensory neuron and spreads to the central nervous system (Ferri, 2014). When Herpes Zoster enters motor cells, myelitis occurs in the gray substance.

In general, this virus occurs in people who are exposed to the effects that weaken their immunity. For instance, people suffering from leukemia, lymphogranulomatosis, those receiving chemotherapy, people with AIDS, and many others often develop Herpes Zoster (Kuchar *et al.*, 2016). Older people also frequently fall ill with this virus due to age-related decline in immune protection. The virus, which has been in the human body for many years, proceeds from the latent phase to the active one without causing any clinical manifestations (Cohen *et al.*, 2013). During this process, intervertebral ganglia and posterior roots are affected. In addition, the virus can have an impact on vegetative ganglia, provoke meningoencephalitis, and influence the functioning of internal organs (Cohen *et al.*, 2013). Consequently, the nature of the pathogenesis of Herpes of this type is complex since the virus shows not only epitheliotropic but also neurotropic features.

#### Clinical Manifestations

The clinical picture of the condition includes skin lesions and neurological disorders. Many patients also exhibit common infectious symptoms such as fever, enlarged lymph nodes, and alterations in cerebrospinal fluid. On the skin of the patient, a specialist can observe erythematous spots of various shapes and small papules that can also be felt when palpating the tissue (Juel-Jensen and Maccallum, 2013). In the course of the disease, lesions of different sizes appear on the affected areas. They can merge into one large vesicle or be isolated from each other. In some cases, a red rim (irritation) can surround small bubbles. It is crucial that all elements of the rash are always at the same stage of development; however, rashes can occur within a few weeks in groups (Cohen *et al.*, 2013). In this case, the groups will be at different stages of disease evolution.

As a rule, vesicles contain a transparent liquid, which gradually becomes turbid and then turns into a crust. If this process has another course, then it is possible to assume that the patient has the easy abortive form of Herpes Zoster, in which the papules do not evolve into vesicles (Swash and Schwartz, 2013). Also, there is a hemorrhagic form of the virus, in which lesions have a bloody liquid since the process penetrates deep into the skin. With gangrenous course of the virus, the bottom of the vesicles is necrotic, and it gradually transforms into a scar. Experts in the field suggest that layering of bacterial infection plays a role in the genesis of this form (Cohen *et al.*, 2013). Nevertheless, further research is needed to confirm this hypothesis.

It is important to note that in addition to the symptoms of general intoxication, a person can experience severe burning pains in the area of the future rash. The localization of herpetic pain corresponds to the area of the affected nerve (Swash &

Schwartz 2013). In severe cases, the pain becomes intolerable and radiates with any movements and manipulations. Any of the described forms of the virus occur along with the lesion of ganglia and can lead to unusual symptoms such as urinary retention, constipation or diarrhea, vasomotor disorders and so on (Kuchar *et al.*, 2016). However, some of the latest studies have hypothesized that there may be a form of the virus without any skin rashes and lesions, which provides the basis for further investigation.

### Diagnosis

Diagnosing this disease is easy enough when it is in ganglion-skin form, and its clinical manifestations are sufficient. However, when the virus is at an early stage of development, and the patient shows symptoms of intoxication and describes severe pain, specialists can mistakenly determine the diagnosis and ignore conducting the necessary tests (Swash and Schwartz, 2013). At this stage, specialists can confuse the disease with angina pectoris, renal colic, appendicitis, and other manifestations (Juel-Jensen and Maccallum, 2013). In order to confirm the diagnosis, it is necessary to make a microscopy or employ the immunofluorescence method, which will immediately determine the presence of the virus.

### Treatment

An important condition for a quicker recovery is the beginning of treatment, which should be initiated as soon as possible. If the physician has evidence to assume the presence of Herpes Zoster, it is necessary to start antivirals intake as soon as possible since this will shorten the length of illness and prevent complications (Juel-Jensen and Maccallum, 2013). At present, there is no radical treatment for the virus, but the

application of the right approach will ease the course of the disease and reduce the damage to the nerves.

Two directions in the treatment of Herpes Zoster are etiotropic treatment and symptomatic one. The first type implies combating the causative agent of the disease, and the second type includes anesthesia and local remedies for symptom relief. Treatment should begin with taking antiviral drugs within the first three days of the rash onset (Skidmore-Roth, 2014). The patient should be prescribed special medication for anesthesia, as well as local antibiotics to prevent additional infection of the affected areas. It should be emphasized that the patient can take corticosteroids simultaneously with antiviral drugs only in extremely severe cases.

In order to cure postherpetic neuralgia, when a patient experiences prolonged pain, it is possible to prescribe antidepressants and local anesthetics, which the patient will apply to the affected skin (Skidmore-Roth, 2014). In addition, antiepileptic drugs can be used, but their prescription is rare. In general, regardless of the type of viral manifestation, any drug or other therapy is prescribed by a physician and continues until all symptoms disappear.

### Conclusion

Thus, it can be concluded that Herpes Zoster is a serious disease that can lead to multiple consequences for human health. When suffering from this virus, a person experiences nerve damage, pain, and rashes in the area of the affected nerve. In the majority of cases, this type of Herpes affects the elderly, as well as individuals with a compressed immune system. The virus can doze in the human body for decades and become active when the human immunity is weakened. The treatment of Herpes Zoster

should be comprehensive and include etiological and pathogenetic means. When skin rashes are resolved, it is necessary to carry out neuropathological treatment until the symptoms disappear completely.



Reference list

- Cohen, K.R. *et al.* (2013) 'Presentation and management of Herpes Zoster (shingles) in the geriatric population', *Pharmacy and Therapeutics*, 38(4), pp. 217-227.
- Ferri, F.F. (2014) *Ferri's clinical advisor 2015: 5 books in 1*. New York, NY: Elsevier.
- Juel-Jensen, B.E. and Maccallum, F.O. (2013) *Herpes Simplex Varicella and Zoster: clinical manifestations and treatment*. Oxford: Butterworth-Heinemann.
- Kuchar, E. *et al.* (2016) 'Clinical presentation of Herpes Zoster in immunocompetent and immunocompromised hospitalized children treated with Acyclovir', *Journal of Pediatric Hematology/Oncology*, 38(5), pp. 394-397.
- Skidmore-Roth, L. (2014) *Mosby's drug guide for nursing students*. 11th edn. New York, NY: Elsevier.
- Swash, M. and Schwartz, M.S. (2013) *Neuromuscular diseases: a practical approach to diagnosis and management*. New York, NY: Springer.