

ONSET OF HERPES ZOSTER IN RELATION TO STRESSFUL PERIODS OF MILITARY SERVICE

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ABSTRACT

Background: Stress is a known predisposing factor for the development of herpes zoster. The purpose of this study was to describe the peculiar stressful circumstances of military service which may lead to physical ailments like herpes zoster.

Patients and Methods: The study was conducted at Combined Military Hospitals, Hyderabad and Abbottabad from Oct 2003 to Sep 2004. Serving soldiers of all ranks who were clinically diagnosed to be suffering from herpes zoster during the above mentioned period were included in the study. They were interviewed in detail, in particular regarding physical or mental stress within a period of one month prior to the development of herpes zoster and examined thoroughly. All the findings were recorded on a pre-designed proforma. A separate proforma was filled for each patient.

Results: Out of 47 patients, 4 (8.51%) developed herpes zoster during the period which they perceived as stressful. 2 soldiers developed herpes zoster when they were undergoing rigorous imprisonment within the unit, 1 soldier developed the eruption during ration dumping to forward areas and the lesions of herpes zoster appeared in 1 when the patient was overworked and fatigued during the preparation for unit inspection. The eruption in all the 4 patients appeared during 2nd or 3rd week of the stressful period.

Conclusion: Stressful periods, peculiar to military service, may lead to various mental as well as physical ailments like herpes zoster. However, the association of occurrence of herpes zoster in relation to stressful periods, peculiar to, military service needs further exploration & methodical studies are required for intervention to limit the incidence of herpes zoster.

Keywords: Herpes zoster, stress, stressful period, military service

INTRODUCTION

Varicella Zoster Virus is a human pathogen that has probably infected human since prehistoric times. As is characteristic of alpha herpesviruses, Varicella Zoster virus establishes latency in the cells of dorsal root ganglia after causing primary varicella infection. Herpes zoster is a neurodermal disease representing the endogenous relapse of the primary varicella infection. It is

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characterized by painful vesicular lesions concentrated in the innervation region of a cranial or spinal nerve [1]. Severe pain is the major cause of acute and chronic morbidity in patients with herpes zoster. Fortunately, the acute pain is self-limiting and transient. However, chronic and often debilitating pain may persist after the lesions have healed and is referred to as post herpetic neuralgia. Similar to acute pain, the incidence of post herpetic neuralgia increases dramatically with age [2]. Vesicular lesions gradually heal within a few days and may leave behind

scarring and change in pigmentation. A Tzanck smear can be useful to demonstrate a herpesvirus infection but confirmation of Varicella Zoster Virus as the cause of infection requires culture, serology, direct immunofluorescence or molecular techniques [3].

Herpes zoster can be reactivated after the initial infection in 15% of the patients [4]. The virus is reactivated approximately 5 to 40 years after causing varicella [5]. This reactivation of the virus results from depression of specific cell mediated immunity, which in turn may occur as a result of multiple factors. Risk factors include age, sex, ethnicity, genetic susceptibility; underlying cell mediated immune disorders, mechanical trauma and psychological stress [6]. The exact mechanism involved in linkage between psychological stress and occurrence of herpes zoster has not been investigated. However, it has been suggested that major Depression is associated with marked decline in Varicella Zoster Virus immunity [7].

The purpose of this study is to describe the peculiar stressful circumstances of military service which may lead to physical ailments like herpes zoster. Although stress is a well known predisposition for the development of herpes zoster, the association of occurrence of herpes zoster in relation to stressful periods, peculiar to, military service needs further exploration & methodical studies are required for intervention to limit the incidence of herpes zoster.

PATIENTS AND METHODS

An observational study was carried out at the skin departments of Combined Military Hospitals Hyderabad and Abbottabad, between October 2003 and September 2004, to find out stressful periods of military service under which young male soldiers developed herpes zoster. Patients between 18 and 40 years of age were included in the study after excluding any underlying immunodeficient state. This was done by a thorough history

and physical examination, and relevant laboratory investigations. These patients were interviewed in detail regarding physical or psychological stress, surgery at or around the site of eruption, localized mechanical trauma and exposure to radiations. None of the patients was taking any drug for any physical or mental illness. Laboratory investigations included complete blood counts, urine routine examination, stool for microscopy, blood glucose fasting, chest X-rays PA view, ultrasound abdomen, liver and renal function tests, and serology for Human Immunodeficiency Virus, Hepatitis C Virus and Hepatitis B Virus. Most of the patients were hospitalized. Those who could not be admitted to hospital were reviewed after every 5 to 7 days till complete healing of their lesions.

RESULTS

From Oct 2003 to Sep 2004, out of 47 patients, 4 (8.51%) developed herpes zoster during the period, which they perceived as stressful. Systemic examination of all the 47 patients and their laboratory investigations were within normal limits. The lesions in all these patients healed within 2 weeks without unusual consequences. Age, the stressful period/event, interval between start of the stressful period and onset of pain, interval between onset of pain and that of the eruption, involved dermatome, treatment and duration of hospital stay in respect of the 4 patients who developed herpes zoster during stressful period are summarized in table-1.

DISCUSSION

Varicella Zoster Virus is a human alpha herpes virus that establishes latency in sensory ganglion cells. Natural Varicella Zoster virus infection elicits T lymphocytes that recognize Varicella Zoster virus glycoproteins. Exogenous re-exposure to Varicella Zoster virus increases T cell proliferation and may be an important mechanism for maintaining virus specific cellular immunity [8]. Latency is

characterized by abundant expression of the immediate early protein 63 (IE 63), whereas other viral proteins have not yet been detected during the latent phase of Varicella Zoster virus infection. It has been suggested that IE 63 is an important target of immunity of Varicella Zoster virus. T cell recognition of IE 63 is likely to be involved in controlling Varicella Zoster reactivation from latency [9]. Reactivation of latent Varicella Zoster virus as herpes zoster is thought to result from waning of specific cell mediated immunity, but little is known about its determinants in individuals with no abnormal immunosuppression [6]. Besides other factors, psychological stress has also been said to provoke occurrence of herpes zoster and recent events perceived as stressful are probably significantly more common among patients with herpes zoster [10]. Stress has also been shown to induce sub-clinical reactivation of Varicella Zoster virus [11].

Herpes zoster is a localized, painful, vesicular eruption involving one or more adjacent dermatomes. In immunocompetent individuals it heals within few days to few weeks without unusual consequences. Antiviral drugs, especially acyclovir ameliorates severe infections but still have little role in the treatment of most normal people suffering from herpes zoster [12].

Measurement of urinary 17 Ketosteroid sulfates is a biomarker of psychosocial stress and a patient developing herpes zoster under stressful period has been shown to have raised levels of urinary 17 Ketosteroid sulfates. Measurement of 17 Ketosteroid sulfates is thought to be indispensable for

current research on psychosocial stress [13].

Military is a peculiar service, where coming across stressful events and working under stressful circumstances is not unusual. In this study we found 4 soldiers out of 47, who developed herpes zoster during the period, which all of the 4 patients perceived as stressful. Rigorous imprisonment is a punishment given to soldiers for various offences after holding a court martial. It involves a lot of physical as well as psychological stress. Similarly, during the season of ration dumping to forward areas, a soldier has to drive 2 loaded mules at a time and has to walk 10-30 kilometers daily for several months at a stretch. Maintenance of units is an important part of military culture. During various inspections and competitions soldiers have to work day and night and it is a source of stress for most of the soldiers.

In our study, we found that out of 47 soldiers 4 patients developed herpes zoster when they were undergoing stressful period of their service. The purpose of this study is not to find out the already well-established relationship between stress and herpes zoster, but to identify the peculiar circumstances of military service under which diseases like herpes zoster can appear. However, methodical and objective study designs are suggested to find out relationship of stressful periods/events with onset of herpes zoster among soldiers.

CONCLUSION

Stress in military service is unavoidable and it leads to various physical ailments.

Table-1: Evolution of herpes zoster during stressful periods in military service.

Age	Stressful period/Event	Interval between stressful Event & pain	Interval between Pain & vesicles	Involved dermatome	Treatment given	Duration of hospital stay
23	Rigorous imprisonment	16 days	01 day	Right T-10	Acyclovir for 5 days	10 days
24	Ration dumping	19 days	02 days	Right T-8	Acyclovir for 7 days	12 days
20	Rigorous Imprisonment	12 days	01 day	Right T-10	Acyclovir for 7 days	11 days
26	Overwork & fatigue before unit inspection	10 days	02 days	Left C-5	Acyclovir for 5 days	10 days

Herpes zoster has been found to be one of those physical ailments that are directly related with stresses of military service. However, stress is not the only factor and multiple other factors also operate in predisposition of herpes zoster. The association of occurrence of herpes zoster in relation to stressful periods in military service needs further exploration & methodical studies are required for intervention to limit the incidence of herpes zoster.

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