

## SHORT COMMUNICATION

## Family history as a risk factor for herpes zoster

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## ABSTRACT

Herpes zoster is a common disease caused by Varicella Zoster Virus (VZV) which is characterized by multiple painful blisters distributed along the dermatome. VZV remains latent in the body in the dorsal root ganglion after the primary infection which commonly occurs in childhood as chickenpox, which presents itself as a completely different set of symptoms. **Aim:** We undertook this study to ascertain a positive family history as a risk factor for herpes zoster. The total number of cases of herpes zoster visiting our outpatient department probably outnumbered those of chickenpox. Even after the rash has disappeared patients are prone to develop a dreaded complication of excruciating pain in the form of post herpetic neuralgia. Thus it appeared very interesting to find if at all a correlation exists between a positive family history and the increased risk of developing herpes zoster which would reflect a genetic association for the same. **Settings and Design:** The study was conducted in 50 patients with herpes zoster in the dermatology department of the Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra and spanned over a period of 11 months. **Material and Method:** We included 50 patients with herpes zoster in our study and found a positive family history of herpes zoster in four of our patients accounting for a total of 8% cases. **Statistical analysis used:** The results were analyzed using appropriate statistical methods. **Result:** Among all, 8% of our patients had a positive family history of herpes zoster with a positive first degree relative. **Conclusion:** In conclusion we would like to mention that a positive family history is indeed a risk factor for the development of herpes zoster.

**Keywords:** Herpes zoster, Risk factor, Varicella zoster virus.

## INTRODUCTION

Herpes zoster also known as shingles occurs in persons who have already had chicken pox. The

name shingles is derived from Latin cingulus meaning girdle as it is a creeping eruption that encircles the body.<sup>1</sup> In the local language of the masses, where we conducted the study, the disease is known as nagin meaning snake; probably relating the severe pain to the pain of a snake constricting the body! Varicella zoster virus (VZV) is a member

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of the herpes virus family.<sup>2</sup> It represents reactivation of the latent form of the VZV that lies dormant in the dorsal root ganglion following the primary infection. Various risk factors have been associated with the increased risk of the development of herpes zoster like decreased cell-mediated immunity, old age, illness and immunosuppressive states. There are other associated risk factors whose association has not been fully elucidated like sex, ethnicity, seasonal variation, stress, trauma and heavy metal exposure.<sup>3</sup> Recently, the possibility of a genetic susceptibility to zoster has been shown by examining polymorphisms at the promoter region of the gene for interleukin 10, a cytokine known to down-regulate cell-mediated immunity.<sup>4</sup> Patients with herpes zoster carried a higher proportion (53%) of the HLA haplotype at the promoter region compared with controls (38%).<sup>5</sup> Besides herpes zoster, many other infectious diseases associated with decreased immunity have been shown to have genetic susceptibility.<sup>5</sup> Several recent studies have discussed HLA association and genetic susceptibility among diseases such as human immunodeficiency virus (HIV), tuberculosis, leprosy, prions, malaria and traveler's disease.<sup>6-10</sup> However, there is yet no convincing evidence that herpes zoster can be acquired by contact with other persons with varicella or herpes zoster.<sup>11</sup> Patients with herpes zoster are less contagious than those with varicella.<sup>11</sup>

## MATERIAL AND METHOD

The study was conducted in 50 patients with herpes zoster in the dermatology department of the Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra and spanned over a period of 11 months. All patients were clinically assessed and examined thoroughly and were asked a pre modulated questionnaire. After taking an informed consent, the patients were asked a series of questions to obtain a demographic data such as name, age, sex, religion and to verify whether they had a memory of previous infection with varicella zoster. After conducting a detailed physical examination, the cases were subjected to routine investigations to estimate their complete blood counts, erythrocyte sedimentation rate, fasting and postprandial blood sugars, Tzanck smear and Elisa for HIV infection.

## RESULT

A total of fifty well documented cases of herpes zoster were included in the study. The males and the females were nearly equal in number being 26 and 24 respectively. The mean age of presentation of our patients was 48 years varying from 17 to 82 years? Apart from those above 60 years of age, when the incidence of herpes zoster increases greatly; our patients included those in their twenties as well. Among all, 8% of our patients had a positive family history of herpes zoster with a positive first degree relative.

As for the chief complaints with which the patients presented to us, the majority had multiple blisters along with severe burning pain accounting for 98% of the cases. The remaining 2% had swelling over the right eye along with a severe headache. Fever was complained by 4% of the total number of patients.

None of our patients were immune-compromised and probably thus we did not come across anyone with a multi-dermatomal distribution of lesions. The majority of our patients had involvement along the thoracic dermatome accounting for 42% of the cases, followed by distribution along the ophthalmic division of the trigeminal nerve with 36% cases and with those along the lumbar, cervical and sacral distribution accounting for 14%, 4% and 4% respectively. Among the 50 cases in our study, two of them were diabetic, accounting for a total of 4% cases. Only three of our cases i.e. 6% had a memory of primary infection with varicella in childhood and these were all from higher socioeconomic status with a younger mean age. None of the elderly patients had a past memory of primary varicella infection.

## DISCUSSION

Herpes zoster occurs throughout the year without any seasonal prevalence and the same was true in our study wherein the cases were uniformly seen throughout our study period without any seasonal variation. The area supplied by the trigeminal

nerve, particularly the ophthalmic division and the trunk from T3 to L2 are most frequently affected; the thoracic region alone accounts for more than one-half of the reported cases and lesions rarely occur distal to the elbows and knees and the same were the findings in our study as well where most of our patients had lesions restricted to the ophthalmic division and the thoracic dermatome.<sup>12</sup> The zoster vaccine reduces the incidence of herpes zoster by one half and the incidence of post herpetic neuralgia by two third, but none of our cases were vaccinated against the virus.<sup>11</sup> A recent study investigated genetic susceptibility to zoster, analyzing polymorphisms at the promoter region of the gene for interleukin 10, a cytokine known to down regulate cell mediated immunity (Haanpaa et al 2002) and showed that significantly higher proportion (53%) of 60 immuno-competent patients with herpes zoster carried the ATA haplotype at this region of the gene compared with 153 (38%) of 400 blood donors.<sup>13</sup> In yet another case control study by Hicks et al, it was found that patients were more likely to report if the blood relatives were positive for herpes zoster (39% vs. 11%). Moreover, the risk was higher in patients with multiple blood relatives with herpes zoster as compared to a single blood relative with the disease.

## CONCLUSION

To conclude, our study suggested an association between positive family histories as a risk factor for the development of herpes zoster. However, we recommend further studies to investigate this association with a larger study group with a concomitant genetic study.

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