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Epidemiological Study of Herpes Zoster in Patients Attending Tertiary Care Hospital

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Abstract: Herpes zoster is a major health burden that can affect individuals of any age. Herpes zoster is caused by reactivation of varicella zoster virus (VZV) laid dormant in sensory dorsal root ganglion. It is seen more commonly among individuals aged >50 years, those with immunocompromised status, those on immunosuppressant drugs. In this era of HIV infection, HIV seropositive patients are at increased risk of severe or disseminated cutaneous or visceral involvement. This study analyse the clinical pattern and epidemiological factors of Herpes Zoster and the HIV prevalence among patients with Herpes Zoster. Current study is prospective study in which 65 consecutive patients of herpes zoster attending dermatology opd of CUSMC, Surendranagar were included. The study was conducted over a period of 6 months from April 2018 to September 2018. Patients were well enrolled after consent. Complete history and cutaneous examination were noted according to preformed proforma. Photographic evaluation and data analysis was done at the end. This study group includes 65 patients having HZ attending skin OPD. Out of this 38 were males 27 were females. Age groups varied from 8 to 80 years. Most common dermatomes involved were thorasic f/b lumbosacral f/b cervical. 13% patient shows HIV seropositivity. Most commonly observed complication was PHN which was encountered in 23% of patients. And most of these patients were above the age of 60 years. HZ can affect any age group with a higher incidence in elderly patients and in those with immunocompromised status. The result of incidence and clinical pattern of HZ is almost parellel to previous study. Any factor of immunosuppression should be checked, especially HIV, particularly in disseminated and long lasting cases. Despite several therapeutic modalities for HZ and its complication, treatment remains challenge.
Keywords: Herpes Zoster, HIV Seropositivity, Post Herpetic Neuralgia, Clinical Study.

INTRODUCTION

Herpes zoster (from the greek herpein meaning to creep and zoster meaning girdle or belt) or shingles caused by the neurodermotropic virus called “Varicella Zoster virus” it is one of the eight viruses that are pathogenic only to humans [1]. The same virus causing chicken pox. HZ can occur at any time after varicella infection or varicella vaccination. Children who had varicella during first year of life (or in utero) are at incresed risk of developing zoster.

Herpes zoster occures due to reactivation of varicella zoster virus [2]. Resolution of the primary infection causes an induction of the varicella zoster virus. Specific memory T cells. The memory T cell immunity declines over time. The decline below a theoretical “zoster threshold” correlates with an increased risk of herpes zoster infection [3, 4]. The memory immunity to varicella zoster virus may be enhanced by exogenous boosting (by exposure to varicella) or endogenous boosting (subclinical reactivation from latency). The average period of immunity against varicella following an infection is 20 years [5]. The reactivation of the virus may be due to immuno-suppression (inherited, acquired or iatrogenic), which in turn may be triggered by age, genetic

predisposition, trauma, sunburn, exhaustion, physiological stress, irradiation or spontaneous. Once the virus is reactivated, it travels along the affected sensory nerve, causes neuronal damage, reaches the respective dermatomes, and forms the vesicular rash of herpes zoster [6]. The pathogenesis behind the reactivation of varicella zoster virus is unknown. But, any factor affecting the cell mediated immunity may play a role in the reactivation of varicella zoster virus. Vaccination against herpes zoster virus is the mainstay of prevention of herpes zoster infection. The two main factors that play a role in the development of post herpetic neuralgia are sensitization and deafferentiation [7-9]. The frequency of involvement is thoracic > lumbar and cervical > sacral. An increased spread of the herpes zoster virus beyond the isolated ganglion nerve dermatome unit is seen among patients who have a deficiency in T lymphocyte and macrophage-mediated immune defense. Involvement of lungs, central nervous system (CNS), mucous membranes, liver, cardiovascular system (CVS), bladder, skeletal system, blood vessels, and gastrointestinal system can be seen among patients with disseminated diseases. Involvement of the lungs, liver, and CNS can be fatal [10].

AIM

Aim of our study is to determine the incidence, risk, and complication of herpes zoster among healthy and immunocompromised patients and to improve the care of patients by accurate diagnosis, early management and by methods to prevent herpes zoster and its recurrence.

MATERIALS AND METHODS

The study material consists of 65 patients who attended Skin OPD C.U Shah Medical College Surendranagar from a time period of 6 Months from april 2018 to September 2018. Detailed history of each patient with reference to age, prodomal symptoms, season of occurrence, P/H/O chicken pox, initial sites of involvement and evolution of lesion and description of pain as noted by the patient. History suggestive of provocative factors such as drugs, recent trauma, surgery, irradiation, immunosuppressive, cytotoxic chemotherapy, DM, pulmonary T.B, HIV infection, was elicited. A thorough dermatological examination regarding the segment of involvement, morphology, and pattern of the lesions, regional lymph node enlargement, motor complications, dissemination of the lesions in other areas of the body etc. were noted.

Whenever necessary, opinion from other specialists such as the ophthalmologist, chest physician, and the general physician were sought. At first reporting, the following investigations were carried out, Tzanck smear (in Giemsa stain) for examination of ballooned epithelial cells and multinucleated giant cells, complete haemogram, blood sugar, and enzyme-linked immunosorbent assay test for HIV antibodies were conducted. All the patients were reviewed weekly for 1 month and monthly for 2 more months.Statistical Analysis was done by SPSS software version 24.

RESULTS

The observations of the study are as follows:

Table-1:Agewise incidence of herpes zoster

Age	No of cases	Percentage
<20 yr	2	3.07%
20-40yr	27	41.53%
40-60yr	22	33.84%
>60yr	14	21.53%
TOTAL	65	100%

Out of 65 patients, maximum no. of patients i.e41.53% fall under age group 20-40 years followed by 33.84% patients in 40-60-years age group and least no. of cases 3.07% occur in age group below 20 years. Among the HIV positive cases maximum no. of cases occurred in 20-40-years age group and no case observed in patient below 10 Years.

Table-2: Sex incidence of herpes zoster

Sex	No of cases	Hiv positive cases
Male	38(58.46%)	3(5.8%)
Female	27(41.53%)	4(7.8%)
Total	65	7

Among the study group of 65 patients, 58.46% were males and 41.53% were females. Among the 7 HIV positive patients, 3 were males and 4 were females, showing female preponderance.

Table-3: Prevalence of HIV seropositivity among Herpes zoster cases

Hiv status	No of cases	Percentage
Seropositive	7	10.7%
Seronegative	58	89.23%
Total	65	100%

According to this study, 7 patients (10.7%) out of 65 were seropositive and 58 patients (89.23%) were found to be seronegative (Table-3).

In this study, thoracic dermatome was more frequently involved followed by lumbosacral, cervical, and cranial dermatomes respectively. 30 cases presented with herpes zoster involving thoracic region (Table-4).

Table-4: Dermatomal involvment

Dermatome involved	No of cases	Percentage
Cranial	5	7.6%
Cervical	7	10.76%
Thoracic	30	46.15%
Lumbar	12	18.46%
Sacral	2	3.07%
Multidermatome	9	13.84%
Total	65	100%

Table-5: Complications

Complication	No of cases	Percentage
PHN	15	23.07%
Secondary infection	10	15.38%
Pigmentory disturbances	8	12.30%
Keloid	1	1.53%
Milia	2	3.07%

The most common complication in this study were post herpetic neuralgia (PHN) seen in 23.07% cases, secondary bacterial infections was observed in 15.38% of the cases. Pigmentary disturbances in 12.30% cases (Table-5).

Out of 65 patients 46 patients (70.76%) are residing in rural area.and 19 patients (29.23%) are residing in urban area (Table-6).

Table-6: Regional distribution

Region	No of cases	Percentage
Rural	46	70.76%
Urban	19	29.23%
Total	65	100%

DISCUSSION

HIV status

In the present study of 65 cases of Herpes zoster 10.7% patient were found to be HIV seropositive and 89.23% patient to be found seronegative. In this study, no other causes of immunosuppression or precipitating factors were found except for old age, and 5 patients were found to be k/c/o diabetes. Unlike the previous study of Laxmisha C *et al*. who reported an incidence of 35% of HIV seropositivity among zoster patients, we found 10.7% of herpes zoster patient having HIV seropositivity[11].

Age wise incidence

In the present study, the highest no. of cases that is 41.53% occurred in 20-40 years age group, this was followed by 33.84% of cases in 40-60 years age group and 21.53% in more than 60 years age group. The least no. of cases 3.07% occurred in <20 years age group. This study is comparable with study of Das AL *et al*. who reported majority (54.08%) of cases in 20-40 yrs age group. A similar case reported by Jain a *et al*. (43.9%) [12, 13].

Sex wise incidence

In the present study 58.46% were males, 41.53% were females. The M: F ratio being 1.5:1.The study is comparable with the studies of Mathur *et al.* and Chaudhary SD *et al.* who reported a male preponderance with M:F ratio of 2:1 [14,15]

Prodomal symptoms

In the present study prodomal symptoms were present in 34% patients which are comparable with the study of Kumar AD *et al*. who reported 30% incidence of prodromal symptoms [16].

Dermatomal involvement

The pattern of dermatomal involvement was slightly different from earlier Indian studies. Thoracic segment was common, followed by lumbar segment followed by cervical segment involvement, unlike the previous study of Nigam P *et al*. where thoracic segment was followed by cervical and lumbar segments respectively.

Complications

The most common complication in this study were post herpetic neuralgia (PHN) seen in 23.07% cases, secondary bacterial infections was observed in 15.38% of the cases. Pigmentary disturbances in 12.30% cases.

The 23.07% incidence of PHN is noted with our study unlike the previous study of Chaudary SD *et al*. and Nigam P *et al*. who reported 14.3% incidence of PHN.

Pigmentary disturbances were seen in 12.30% of cases. This is similar to the study of Chaudhary SD *et al*. Post herpes zoster scarring with Millia formation was seen in two cases and keloid was seen in one patient.

Tzanck test

This test was positive in 34 patients only (52%). This can be explained by the fact that the yield obtained is lower in pustular and crusted lesions.

CONCLUSION

HZ can affect any age group with a higher incidence in elderly patients and in those with immunocompromised status. The result of incidence and clinical pattern of HZ is almost parellel to previous study. Any factor of immunosuppression should be checked, especially HIV, particularly in disseminated and long lasting cases. So All patients presenting with severe herpes zoster should be screened for HIV seropositivity and considered to be marker of undiagnosed HIV infection. Treatment with antivirals within 72 hours of onset of rash has shown a reduction in herpes zoster and its complications. Herpes zoster vaccination for individuals aged more than 60 years reduces the incidence, burden of illness and morbidity associated with herpes zoster and post herpetic neuralgia. Despite several therapeutic modalities for HZ and its complication, the treatment remains challenge.

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