

## Clinico Epidemiological Study of Herpes Zoster in HIV Era in a Tertiary Care Hospital in South India

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### Abstract:

**Background:** Herpes Zoster is a disease which is caused by reactivation of latent varicella zoster virus and is usually self limiting in healthy adults. But the case seems to be different in patients with immuno suppression. In this era of HIV infection, HIV seropositive patients are at increased risk of suffering from severe or disseminated cutaneous or visceral involvement.

**Aims:** 1. To study the clinical presentation and complications of Herpes Zoster in immuno competent and HIV seropositive patients. 2. To study the epidemiological factors of Herpes Zoster. 3. To know the HIV prevalence among patients with Herpes Zoster.

**Material And Method:** A total of 100 patients with Herpes Zoster attending DVL OP at S.V.R.R. Govt. General Hospital, Tirupati (AP) were studied.

**Results:** Disease severity and complications were greater in HIV seropositive individuals.

**Conclusion:** All patients presenting with severe form of Herpes Zoster should be screened for HIV infection as it is considered to be a marker of undiagnosed HIV infection.

**Keywords:** Herpes Zoster, HIV seropositivity, Immuno Supression, Post Herpetic Neuralgia (PHN)

### I. Introduction

Herpes Zoster which is a disease of antiquity and ubiquity is caused by reactivation of latent varicella zoster virus. The first manifestation is usually pain accompanied by constitutional symptoms and tenderness localized to areas of one or more dorsal nerve roots. This is followed by appearance of eruption consisting of papules and vesicles in a dermatomal pattern. In uncomplicated cases spontaneous recovery occurs in 2-3 weeks. But in the presence of immuno suppression due to any cause it runs a protracted course causing severe cutaneous and systemic complications. Herpes Zoster is also the commonest cutaneous manifestation of immune restoration disease.

### II. Material And Methodology

The study material consists of 100 patients of Herpes Zoster who attended DVL OP at S.V.R.R. Govt. General Hospital, Tirupati (AP). All stages of the disease from erythematous macules to crusted lesions were selected. A detailed history with reference to age, onset, prodromal symptoms, season of occurrence, history of varicella, initial site, side, morphology of initial lesions as noted by patient, description of pain and evolution of the lesions was noted.

History of precipitating factors like any past or present illness, physical or emotional stress, any surgical procedure or irradiation and history of drug intake was noted. Occupation, socio economic status and health of regular consort were ascertained. Details of family history and personal history were noted. The HIV status of the patient was found out.

Next a general physical examination and dermatological examination was done. Any sensory or motor deficit was looked for. Other systems were examined. The cases diagnosed clinically were investigated with routine tests and Tzanck test was done. All patients whose HIV status was not known were screened for HIV 1 and 2 by Elisa tests.

### III. Observations And Results

The observations of the study are as follows:

**Table 1 Prevalence of HIV Seropositivity among Herpes Zoster Cases**

HIV Status	No. of Cases	Percentage
Seropositive	32	32
Seronegative	68	68
<b>Total</b>	<b>100</b>	<b>100</b>

According to this study, prevalence of HIV seropositivity was 32%.

**Table 2 Age Wise Incidence of Herpes Zoster**

S. No	Age Groups in Years	No. of Cases	HIV Positive Cases
1.	Upto 10 years	2	0
2.	11 - 20 years	5	1
3.	21 - 30 years	26	12
4.	31-40 years	30	16
5.	41-50 years	22	1
6.	51 – 60 years	10	1
7.	61 -70 years	5	1
<b>Total</b>		<b>100</b>	<b>32</b>

According to this table, the highest number of cases i.e., 30% occurred in the 31-40 years age group and least number of cases 2% occurred in less than 10 years age group.

Among the HIV positive cases maximum number of cases occurred in the 20-40 years age group and no cases were observed in patients below 10 years.

**Table 3 Sex Incidence of Herpes Zoster**

Sex of the Patient	No. of Cases	HIV Positive Cases
Male	69	23
Female	31	9
<b>Total</b>	<b>100</b>	<b>32</b>

Among the study group of 100 cases, 69% were males and 31% were females. Among the 32% HIV positive patients, 23 patients were males and 9 patients were females showing male preponderance in both groups.

**Table 4 Socio Economic Status**

S.E. Status	No. of Cases	Percentage
Upper class	1	1
Middle class	81	81
Lower class	18	18
<b>Total</b>	<b>100</b>	<b>100</b>

In this study, 81% of patients belonged to middle class, 18% to lower class and 1% to the upper class.

**Table 5 Dermatomal Involvement**

S.No	Dermatome involved	No. of cases	Percentage
1	Cranial	12	12
2.	Cervical	21	21
3.	Thoracic	51	51
4.	Lumbo sacral	16	16
<b>Total</b>		<b>100</b>	<b>100</b>

In this study, the thoracic dermatomes were most frequently involved followed by the cervical, lumbosacral and cranial dermatomes.

**Table 6 Multi Dermatomal Involvement With Reference To HIV Status**

HIV Status	No. of Cases	Cases with Multi Dermatomal Disease	Percentage
Seropositive	32	28	87.5%
Seronegative	68	14	25.9%
<b>Total</b>	<b>100</b>	<b>42</b>	<b>42%</b>

In this study, while 87.5% of cases which were HIV seropositive had multi dermatomal disease, only 25.9% of the seronegative patients had multi dermatomal involvement. Out of the total 100 cases, 42% of cases had multi dermatomal disease.

**Table 7 Complications**

S.No	Complications	No of cases	Percentage
1	Secondary infection	21	21
2.	Pigmentary Disturbance	15	15
3.	Post herpetic neuralgia	15	15
4.	Dissemination	1	1
5.	Milia	2	2
6.	Brachial amyotrophy	1	1
7.	Keloid	1	1

The most common complications in this study were secondary bacterial infection 21%, pigmentary disturbance 15% and post herpetic neuralgia occurring in 15% of cases.

**Table 8 Incidence of Complications and PHN With Reference to HIV Status**

HIV Status	No. of Cases	No. of cases with complications	No. of cases with PHN
Seropositive	32	20 (62.5%)	8 (25%)
Seronegative	68	26 (38.2%)	7 (12.9%)
<b>Total</b>	<b>100</b>	<b>46 (46%)</b>	<b>15 (15%)</b>

From the above table, it can be observed that while 20 out of 32 HIV seropositive patients had complications (62.5%), only 26 out of 68 HIV seronegative patients had complications (38.2%) and of the total 100 cases, 46 cases had complications (46%). It can also be observed that while 8 out of 32 HIV seropositive patients had PHN (25%), only 7 out of 68 HIV seronegative patients had PHN (12.9%). Of the total 100 cases, 15 cases (15%) had PHN.

#### **IV. Discussion**

##### **4.1 HIV Status :**

In the present study of 100 cases of Herpes Zoster, 32 patients (32%) were found to be HIV seropositive and 68 patients (68%) were found to be seronegative. In this study, no other causes of immunosuppression or precipitating factors were found except for old age and 3 of the patients were diabetics. The results of this study are comparable to the study of C. Laxmisha et al (2004)[1] who reported an incidence of 35% of HIV seropositivity among zoster patients.

##### **4.2 Age Wise Incidence :**

In the present study, the highest number of cases i.e., 30% occurred in 31 to 40 years age group. This was followed by 26% of cases in 21 to 30 years age group and 22% in 41 to 50 years age group. The least number of cases 2% occurred in less than 10 years age group.

This study is comparable with the study of A.L. Das et al (1997)[2] who reported majority of cases in 20 to 40 years age group. A case of zoster occurring in a 7 month old child whose mother suffered from varicella during her antenatal period in the 6<sup>th</sup> month has been observed in this study. A similar case has been reported by Jain. A. et al (1999)[3].

##### **4.3 Sex Incidence :**

In the present study, 69% were males (M) and 31% were females (F), the M:F ratio being 2.2:1. This study is comparable with the studies of Mathur et al (1967)[4] and Chaudary.S.D. et al (1987)[5] who reported a male preponderance with M:F ratio of 2:1. Among HIV seropositive patients, M:F ratio was 2.6:1 in this study.

##### **4.4 Socio Economic Status :**

The higher incidence of zoster in the middle and lower socio economic groups in this study may be due to more number of patients in these groups attending the government general hospital.

##### **4.5 Prodromal Symptoms :**

In the present study, prodromal symptoms were present in 34% of patients which is comparable to the study of Dubey Anand Kumar et al (2005)[6] who reported 30% incidence of prodromal symptoms.

##### **4.6 Dermatomal Involvement :**

The pattern of dermatomal involvement in this study is comparable with the study of Nigam P et al (1972)[7]. Multidermatomal involvement was observed in 42 patients (42%) in this study. Out of these cases, 28 patients were HIV seropositive giving an incidence of 87.5%. Disseminated zoster was noted in 1 patient who was a 65 year old male diabetic and seronegative for HIV infection.

##### **4.7 Complications :**

In this study, secondary bacterial infection was seen in 21 patients (21%). This is in contrast to the studies of Sehgal V N et al (1976)[8] and Chaudary S D et al[5] who observed secondary bacterial infection in only 4.4% and 2.6% respectively. This may be due to the fact that most patients in this study did not seek medical treatment in the early stage of disease.

The 15% incidence of PHN is comparable with the study of Chaudary S D et al (1987)[5] and Nigam P et al (1972)[7] who reported an incidence of 14.3%. Incidence of PHN among HIV seropositives was 25%.

Disseminated disease though common in immunosuppression was seen in 1 patient who was negative for HIV, while the study of Sehgal V N et al (1976)[8] reported a 3% incidence.

Pigmentary disturbance was seen in 15% of cases. This is similar to the study of Chaudary S D et al (1987)[5].

Post herpes zoster scarring with milia formation was seen in 2 cases and keloid was seen in 1 patient. Brachial Amyotrophy was seen in 1 patient.

#### 4.8 Tzanck Test :

The test was positive in 60 patients only (60%). This can be explained by the fact that the yield obtained is lower in patients with pustular and crusted lesions.

### V. Conclusions

1. All patients presenting with severe herpes zoster should be screened for HIV seropositivity as it is considered to be a marker of undiagnosed HIV infection.
2. In the present study, prevalence of HIV seropositivity among zoster patients was 32%.
3. Most cases were in the 20 to 40 years age group with increased incidence in middle and lower socio economic strata.
4. Though the disease occurs with equal incidence in both sexes in this study, male preponderance was noted (M:F ratio was 2.2:1).
5. Multidermatomal pattern of disease and complications were commonly seen in HIV positive patients along with greater incidence of PHN. Most common complication seen was secondary bacterial infection. Recurrent herpes zoster was seen in 2 cases and both of them were HIV seropositive. Thus it can be observed from the present study that herpes zoster runs a severe course in HIV infected persons.

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### FIGURES



**Figure 1:** Zoster involving first and second divisions of trigeminal nerve on right side



**Figure 2 & 3:** Multi dermatomal zoster involving Right C5, 6 and 7 Dermatomes in a 7 month old child



**Figure 4:** Post herpes zoster milia formation