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Original Research Article

Herpes zoster in HIV patients - correlation with CD4 count

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ABSTRACT

Persons with HIV infection are at risk of developing severe illness from either varicella or zoster. Hence this study is undertaken at department of DVL, Osmania General hospital, Hyderabad from December 2011 to May 2013. to determine the CD4 count of HIV in patients suffering from herpes zoster and to know the clinical and morphological characteristics of herpes zoster over 50 patients. The present study showed that herpes zoster in HIV most commonly occurs in young adults between 2nd to 4th decade with a slight male preponderance. As the CD4 counts decreases, there was more risk of involvement of more the one dermatome and dissemination.

1. Introduction

Herpes zoster causes unilateral radicular pain and grouped vesicular eruption that is normally limited to dermatome innervated by a single spinal or cranial sensory neuron. Reactivation of varicella zoster virus(VZV) which persisted in latent form within sensory ganglion following an earlier attack of varicella causes herpes zoster.

Traditionally persons with more than 60 years of age are more affected for Herpes zoster. Recently herpes zoster has been observed in young adults infected with human immunodeficiency virus infection. The number of complicated and atypical herpes zoster has increased due to increasing prevalence of HIV infection.

Zoster typically presents as a painful localized cutaneous eruption occurring along one or more contiguous dermatomes, as with varicella zoster usually self limited in the immune competent host but immune compromised persons are at risk of more severe illness with cutaneous or visceral dissemination.[1,2] Cell- mediated immunity plays a critical role in inactivating varicella zoster and maintaining its latent phase. It appears that T lymphocytes are necessary for viral inactivation and that a relative loss of CD4 cells accompanies acute herpes zoster outbreaks.

Risk of developing severe illness from varicella or zoster is more common in HIV infected persons. Active, symptomatic VZV infection patients with HIV usually require specific antiviral chemotherapy, some cases even require hospitalization. Acyclovir, Valacyclovir, and Famciclovir are drugs of choice for most VZV infections.[3,4] Intravenous Foscarnet is effective in acyclovir-resistant VZV infections.[5,6] Varicella vaccine administration is an important strategy to protect children and adults who have not had prior VZV infection. HIV patients who have CD4 counts of >200 cells/μL can be given The vaccine despite the theoretical risk of live-virus vaccination in this population.[7,8] A high- titered VZV vaccine to prevent reactivated VZV disease also is available for adults, but is not specifically recommended for immune compromised patients such as those with HIV infection.[9]

Hence this study is undertaken to determine the CD4 count of HIV in patients suffering from herpes zoster and to know the clinical and morphological characteristics of herpes zoster.

2. Aims & Objectives

The purpose of this study was

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1. To study the demographic characteristics of herpes zoster among HIV patients
2. To study the various clinical presentation of herpes zoster, the common sites, extent of involvement among HIV patients.
3. To determine the CD4 count among HIV patients suffering from herpes zoster
4. To correlate mean CD4 counts with the varied presentations of HIV patients

3. Materials and Methods

The present study is conducted at department of DVL, Osmania General hospital, Hyderabad from December 2011 to May 2013. The source of data for the study includes all cases of herpes zoster attending the OPD and referred cases from other departments, at.

3.1. Inclusion criteria

1. All new clinically diagnosed cases of herpes zoster were included in the study
2. Only the patients who were willing to enroll themselves in the study were included

3.2. Exclusion criteria

1. Old cases of herpes zoster and those in whom a history of herpes zoster is unreliable were excluded.
2. Patients unwilling to undergo tests and enroll themselves in the excluded from the study

A sample size of 50 was selected among those seropositive cases attending the DVL OPD, OGH, Hyderabad and diagnosed as herpes zoster. Main parameters studied was correlation between herpes zoster in seropositive cases and CD4 counts.

The patient's demographic data, symptoms, location of lesions, risk factors, associated systemic disease and complications was noted in a pre-tested and pre-designed proforma after taking informed and written consent. Diagnosis was made by history and clinical examination.

Routine haematological and urine investigations such as Hb%, TC, DC, ESR, RBS, Urine routine and microscopy were done in all patients. Tzanck smears were done. Analysis was done by recording the data in the form of tables.

4. Results

The present study is a one-year cross-sectional descriptive study and included 50 seropositive cases of herpes zoster who attended the OPD from December 2011 to May 2013.

4.1. Age distribution

In the present study, the youngest patient was 18 years and the oldest was 71 years old. The maximum number of cases were seen in the 21-40 years age group 30(60%) followed by 41-50 years age group 6(12%) and 51-60 years age group 9(8%). Very few patients 2(4%) were afflicted with herpes zoster at the extremes of age (61-80) in this study.

4.2. Sex distribution

In the present study, there were 31(62%) males and 19(38%0 females affected with herpes zoster giving a male: female ratio of 1.6:1.

4.3. Distribution of patients based on occupation

In the present study, the maximum numbers of patients were Labourers 21 (42%), housewives 12(24%). Agriculturists 4(8%), drivers 3(6%) students 3(6%), other 6(12%) and businessman 1(2%) constituted the next common category.

4.4. Time taken to report to the hospital

In present study, the majority of the patients reported within 5 days of onset of their lesions, 30(60%) out of 50 having done so. 10(20%) patients reported 6-10 days of onset of lesions, 6 were in the 11-15 days group and 4(8%) in the 15+ days group.

4.5. Primary symptom

In the present study, a burning sensation was the most common symptom that appeared first in patient 26 (52%). Pain was the 1st symptom in 12(24)patients. Skin lesions and tigling appeared 1st in 3(6%) patients and itching was the 1st symptom in 6(12%) patients.

4.6. Type of dermatome involved

In the present study, most commonly involved dermatome was thoracic 26(52%) followed by lumbar 9(18%). The next dermatome group commonly involved were the cervical 7(14%), trigeminal 6(12%) and 2(4%) cases of sacral dermatome involvement was present.

4.7. Side of dermatome involvement

In the present study, the left side of the body 30in cases (60%) was more commonly involved than the right side, 19 cases(38%).1 case of herpes zoster had bilateral dermatomal distribution of lesions.

4.8. Number of dermatomes involved

In the present study, 20 patients had only one dermatome involved (40%). Two dermatomes were involved in 22 (44%) patients. More than two dermatomes involved in 6

patients(12%) Disseminated herpes zoster was present in 2 (4%) patients.

4.9. Type of skin lesions

In the present study, most of the patients 42 (92%) had classical vesicular type of herpes zoster. 3(6%) patients had bullous and 1(2%) case had hemorrhagic skin lesions.

4.10. Recurrence of herpes zoster

In the present study, only 4 patients had a recurrence of herpes zoster.

4.11. Sexual behavior

In the present study 8 cases had homosexual activity while 42 cases were heterosexuals.

4.12. Correlation with CD4 count: 1.

Table 1: Type of dermatome

S. No	Dermatome involved	Mean CD4 count (cells/cu.mm.)
1.	Trigeminal	301
2.	Cervical	251
3.	Thoracic	239
4.	Lumbar	259
5.	Sacral	285

Table 2: No. of dermatomes

Number of dermatomes involved	Mean CD4 count
One	271
Two	267
>two	207
disseminated	155

Table 3: Type of lesion

Type of lesion	Mean CD4 count
Classical	260
Bullous	262
Hemorrhagic	170

5. Discussion

5.1. Age distribution

It is observed in various Indian studies that the majority of herpes zoster cases occur in the 2nd to 4th decades of life. In our study also, most of the cases were between the ages of 20 and 40 years, thus correlating well with the above studies.

5.2. Sex distribution

There are a few Indian studies which have noted a higher incidence of herpes zoster in males, with male to female ratios ranging from 1.74:1 to 3:1. The present study gives a M:F ratio of 1.6:1, which correlates with earlier studies. This may perhaps be because fewer women seek medical attention compared to males.

5.3. Primary symptom

In the present study, burning sensation was the most common symptom that appeared first in patients.

5.4. Type of dermatome involved

In the present study, most of the patients had thoracic dermatome involvement. The next dermatome groups commonly involved were the lumbar followed by cervical group. Cranial nerve involvement was seen in 12% of patients. The figures of the present study agree with most of the above studies and suggest that thoracic segments were the most common dermatomes to get involved in herpes zoster as shown in the table given below.

5.5. Number of dermatomes involved

This study observed that herpes zoster occurring in HIV is most often involved one dermatome but may be multidermatomal or disseminated Another study has reported that dermatomal distribution of herpes zoster is similar among HIV seropositives and HIV seronegatives.

5.6. Correlation with CD4 count

In the present study, it was found that the mean CD4 count was 255. It is almost similar to study by MJ Glasby et al(200-349).[15] Maximum mean CD4 count was seen when compared with individual dermatomes, in trigeminal(301) followed by sacral(285) and lumbar(259). Least was seen for thoracic dermatome(239).

The mean CD4 count in those individuals with disseminated zoster was found to be 155 while those of single and two dermatomes are 271 and 276 respectively. The mean CD4 count for patients with >2 dermatome involvement was 207. Thus it can be concluded from the above study that as the CD4 count decreases, the number of dermatomes involved increases.

When CD4 count is correlated with the type of skin lesion, almost similar mean CD4 count was seen for both classical(260) and bullous lesions(262). In a single case of hemorrhagic zoster mean CD4 count was 170.

6. Conclusion

1. The present study showed that herpes zoster in HIV most commonly occurs in young adults between 2nd

Table 4:

Study	Year	Cranial	Cervical	Thoracic	Lumbar
Hope- Simpson et al [10]	1965	15	14.6	53.6	16.8
Nigam et al [11]	1972	7.4	13.3	73	5.7
Sehgal et al [12]	1976	8.8	20	52.5	18.8
Chaudary et al [13]	1987	11.3	19.5	55.2	13.9
Dubey et al [14]	2005	10.28	15.8	54.81	13.08
Present study	2013	12	14	52	22

to 4th decade with a slight male preponderance.

2. Burning sensation and pain were the most common presenting symptoms in these patients
3. The most common dermatome involved was thoracic (52%) followed by lumbar (18%) which was similar to most of the previous studies.
4. As the CD4 count decreases, there was more risk of involvement of more than one dermatome and dissemination.
5. Most of the cases presented with classical vesicular lesions but atypical presentations like hemorrhagic were associated with low CD4 counts.
6. These observations augment the prevailing concept that HIV infection complicates the natural course of herpes zoster.
7. Thus, atypical presentations like ulcerative and hemorrhagic lesions in zoster patients should prompt the treating physician to look for decrease in CD4 cell counts which may alter the course of treatment and further management of HIV patient.

7. Source of Funding

None.

8. Conflict of Interest

None.

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