

Original Research Article

Clinical study of herpes zoster in 109 patients in central referral hospital, Gangtok

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ABSTRACT

Background: Herpes zoster results from the reactivation of varicella-zoster virus lying dormant in the dorsal root ganglia following an earlier primary infection (chickenpox), usually in childhood. The reactivation occurs due to multifactorial causes leading to decreased immunity.

Methods: This study was conducted on 109 cases of herpes zoster. Patient's particulars were noted. A detailed history was recorded; morphology, the site and side of skin lesions were recorded. Any other associated diseases were noted.

Results: Out of 109 patients 66 were male and 43 were female. The total of 53 (48.6%) patients were under the age of 40 years and 56 (51.4%) patients above 40 years. Bhutias were affected in highest number (18.4%) followed by Sharma community (15.6%). The ophthalmic division of trigeminal nerve was the most commonly affected single nerve with 13.8% followed by T10 and T7 dermatome at 9.17% and 7.3% respectively. Thoracic nerves the most commonly involved thoracic nerves with 44 cases. Single dermatomal eruptions were found in 55 patients. The dissemination of herpes zoster was although very rare but was present in three patients. Type 2 diabetes mellitus was the common associated systemic illness with 10.09% of patients.

Conclusions: From this study it was revealed that both young adults and older age group people were affected almost equally. The male: female ratio was 1.5:1 with Bhutia community being mostly affected. Thoracic dermatome was the most common dermatome involved and in half the patients some form of associated disease noted.

Keywords: Herpes zoster, Varicella, Gangtok, Sikkim

INTRODUCTION

Varicella zoster virus (VZV, also known as human herpesvirus 3) is a ubiquitous alpha herpes virus with a double-stranded DNA genome. VZV only naturally infects humans, with no animal reservoir; its main targets are T lymphocytes, epithelial cells and ganglia. Primary infection causes varicella (chickenpox), during which VZV becomes latent in ganglionic neurons. As cellular immunity to VZV wanes with advancing age or in immunocompromised individuals, VZV reactivates to cause zoster (shingles).¹ The lesions appear in a dermatomal distribution. Although in most cases the manifestations are classical but in compromised

immunity like in HIV disease it presents in diverse manner such as multi-dermatomal involvement, crusted, nodular or vesiculopustular, ulcerative and ecthymatous lesions that may be widely disseminated.²⁻⁸ The objectives of the study was to find out the prevalence of herpes zoster in different age, sex and ethnicity and to see for the provocative factors, pattern of dermatomal involvement and association with systemic diseases.

METHODS

This study was conducted on 109 patients attending Dermatology OPD in Central Referral Hospital, Gangtok Sikkim from January 2018 to December 2018. All cases

of herpes zoster attending dermatology OPD and referred cases of zoster from other departments were included for the study and the patients who were not willing to give consent and mentally unstable were excluded from the study. The patients particulars like age, sex, occupation, address were noted. A detailed history regarding the initiation of symptoms before and after the skin eruptions were taken. History of varicella in the past was also asked. Any other associated diseases were also noted. Each patient was taken for general and systemic examinations. Morphology of lesions, site of affection, cutaneous dissemination, mucosal involvement, motor palsy associated with zoster and other cutaneous and systemic disease were recorded. The obtained final result of the study was analysed statistically using SPSS 17 version of software.

RESULTS

Out of 109 patients 60% were male and 40% were female.

It was observed that herpes zoster was found in higher preponderance in the age group of 31-40 years (24.77%) followed by 61 years and above (22.01%) with all patients taken together. The male female ratio was found to be 1.52: 1, with 30.23% of females affected in age group of more than 61 years, followed by 25.58% females in 31-40 years, while among males it was found more in 31-40 years 24.24% followed by 21.21% in age group of 21-30 years.

Table 1: Sex and age preponderance.

Sex	Age range (in years)							Total N (%)
	0-10	11-20	21-30	31-40	41-50	51-60	>61	
Female	1	1	4	11	8	5	13	43 (39.44)
Male	0	6	14	16	9	10	11	66 (60.55)
Total N (%)	1 (0.92)	7 (6.42)	18 (16.51)	27 (24.77)	17 (15.60)	15 (13.76)	24 (22.01)	109 (100)

It was observed from the study in term of ethnicity and community, Bhutia community (18.4%) were most affected followed by Sharma community (15.6%) (Figure 1).

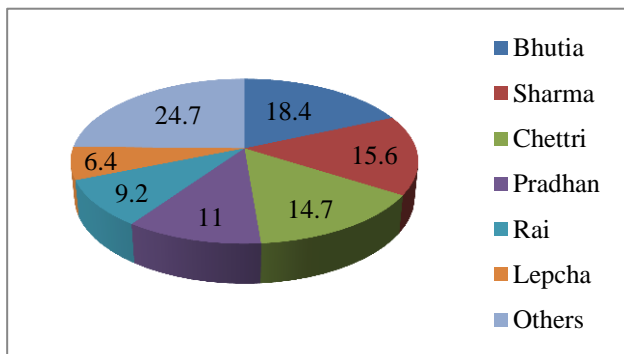


Figure 1: Herpes zoster among Sikkimese community.

The ophthalmic division of trigeminal nerve was most commonly affected 13.8% followed by T10 and T7 dermatome at 9.17% and 7.3% respectively. The S1 and C7 dermatome affection were found in 6.4% of the patients (Table 2). Thoracic dermatome was the most common dermatome involved 44 followed by cervical (26), cranial nerves (25), sacral (08) and lumbar (06).

Single eruptions were most commonly found in 91.74% while multiple eruptions were found in only 8.25% of cases. Among total 109 patients, in 59 patients (54.12%) had eruptions over right side. Multiple eruptions over both sides were seen only in 3 cases (Table 3).

Involvement of both the sides is seen in 3.02% male and 2.32% female patients. In female patients left side affection (55.81%) was more than the right side affection (41.86%) and contrary to this, in male patients right side affection (62.12%) was more than the left side affection (34.84%).

Table 2: Affected dermatome in herpes zoster.

Affected dermatome	Frequency	%	Affected dermatome	Frequency	%
Ophthalmic division CN V	15	13.8	T1-T2	1	0.9
Mandibular division CN V	4	3.7	T4	1	0.9
CN VII	5	4.6	T5	4	3.7
CN IX	1	0.9	T6	2	1.8
C1	3	2.8	T7	8	7.3
C2	2	1.8	T8	3	2.8
C3	1	0.9	T8-T9	1	0.9
C3-C4	1	0.9	T9	3	2.8
C3-C7	1	0.9	T10	10	9.17
C4	1	0.9	T11	5	4.6
C5-C7	3	2.8	T12	5	4.6

Continued.

Affected dermatome	Frequency	%	Affected dermatome	Frequency	%
C6	1	0.9	L1	1	0.9
C7	7	6.4	L1-L2	5	4.6
C8	6	5.5	S1	7	6.4
T1	1	0.9	S2	1	0.9

Table 3: Number of eruptions and side.

No. of eruptions	Both sides	Left	Right	Total N (%)
Multi	3	2	4	9 (8.25)
Single	0	45	55	100 (91.74)
Total N (%)	3 (2.75)	47 (43.11)	59 (54.12)	109 (100)

Table 4: Lesions compared with sex and side.

Sex	Both sides	Left	Right	Total
	N (%)	N (%)	N (%)	N (%)
Female	1 (2.32)	24 (55.81)	18 (41.86)	43 (39.44)
Male	2 (3.03)	23 (34.84)	41 (62.12)	66 (60.55)
Total	3 (2.75)	47 (43.11)	59 (54.12)	109 (100)

Table 5: Associated illnesses with herpes zoster.

Associated illness	Frequency	%
Diabetes mellitus	11	10.09
Hypertension	10	9.17
Gastrointestinal and hepatic problems	7	6.42
Carcinoma	3	2.75
Arthritis	5	4.58
Bronchial asthma and COPD	4	3.67
Hyperthyroidism	1	0.91
Hypothyroidism	3	2.75
Tinea infection	2	1.83
Multiple illnesses (>1)	10	9.17
No illnesses	53	48.62
Total	109	100

In 10.09% of patients diabetes mellitus was documented and were on regular medication for the same. In 9.17% of patients hypertension was associated and another 9.17% patients had multiple illnesses comprising of hypertension, cirrhosis of liver, gall stone etc. Gastrointestinal and hepatic problems were documented in 6.42% of patients. In 51.38% some form of associated diseases noted. Herpes zoster without any documented illness was seen in 48.62%.

DISCUSSION

The study of herpes zoster in 109 patients revealed that both young adults and older age group people were affected almost equally. The total of 53 (48.6%) patients below the age of 40 years were affected and 56 (51.4%) above 40 years. In contrast to our finding the majority affection in adults was seen in other studies 73% patients were affected below 50 year.⁹ In another study, 55%

affection below age of 40 years.⁸ This was similar to the study by Pavithran and Sehgal et al but in contrast to other reports in the literature where the older people were affected more commonly.¹⁰⁻¹⁴

In this study male: female ratio was 1.5: 1 which is similar to other studies.^{8,13} In contrast, some western studies have shown female predominance.^{15,16} Both males and females with equal affection was seen in some other studies.^{14,17}

It was observed from the study in term of ethnicity and community, Bhutia community (18.4%) were most affected followed by Sharma community (15.6%). No such association was noted in any other studies.

Thoracic dermatome was the most common dermatome involved (44). This finding is similar to the study by Pavithran et al.⁸ Similar finding was noted in another study done by Chandrakala.⁹ The other frequently

involved dermatomes were cervical dermatome (26), cranial (25) in accordance with the literature reports.¹⁸ The least common dermatome involved was lumber segment (06) followed by sacral segment (08). The dermatomal segment supplied by ophthalmic division of trigeminal nerve was the single most commonly affected nerve accounting for 13.8% followed by T10 and T7 dermatome at 9.17% and 7.3% respectively.

Out of 109 cases, 91.74% of cases had involvement of single dermatome and 8.25% of cases had multi dermatomal involvement. This finding was similar to the one studied by Chandrakala.⁹ Since HIV status of the patient was not seen so the association between immunocompromised status and multi-dermatomal involvement cannot be commented upon. In our study population, 55 cases had provocative factors for development of herpes zoster. Among them, 11 cases (10.09%) were having diabetes mellitus, 10 cases (9.17%) were associated with hypertension alone, and another 9.17% patients had multiple illnesses. Some patients were on immunosuppressant therapy for carcinoma (3), bronchial asthma (4) and arthritis (5). Depressed cell-mediated immunity associated with most of the above-mentioned conditions, as described in literature could be the possible factor for the development of zoster.¹⁹ Few cases each were also associated with some other diseases like hyperthyroidism, hypothyroidism and dermatophytosis. The association of zoster with these diseases may be coincidental.

CONCLUSION

From this study it was revealed that both young adults and older age group people were affected almost equally. The male: female ratio was 1.5: 1 with Bhutia community being mostly affected. Thoracic dermatome was the most common dermatome involved and in half the patients some form of associated disease noted. The ophthalmic division of trigeminal nerve was most commonly affected in 13.8% patients.

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Ethical approval: The study was approved by the institutional ethics committee

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