

Frequency and Pattern of Herpes Zoster at Liaquat University Hospital Hyderabad (Six months hospital based descriptive study)

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ABSTRACT

OBJECTIVE: To determine the frequency and pattern of herpes zoster at Liaquat University Hospital, Hyderabad.

PATIENTS AND METHODS: This hospital based descriptive study of six months was carried out at Liaquat University Hospital, Hyderabad (Sindh) Pakistan; from March 2008 to August 2008. All patients who were above 12 years of age, attended the dermatology OPD and were diagnosed as cases of Herpes Zoster were evaluated and enrolled in the study. The diagnosis was established by history and relevant clinical examination. The data were collected on pre-designed proforma, saved and analyzed in SPSS version 10.00. The frequency and percentage of herpes zoster was calculated by detecting the number of positive cases while the pattern was assessed through prodromal, presenting symptoms, dermatome involved and observation of certain complications.

RESULT: One hundred and ten patients were diagnosed as herpes zoster infection with mean age 38.9 ± 10.79 years. Majority (80%) of the patients was presented in the Department of Dermatology and 76% were males. The most common prodromal symptom was paresthesia in 40 patients, itching in 35 patients, fever and headache in 20 patients, tingling in 15 patients, watering from eyes in 12 patients and burning in 10 patients. The dermatomes involved were thoracic in 78 patients, trigeminal nerve in 12 patients, lumbar in 10 patients, cervical in 08 patients, and sacral in 02 patients. The complications seen were secondary infection in 42 (38%) patients, scarring in 18 (16%) patients, and post-herpetic neuralgia (PHN) in 15 (14%) patients.

CONCLUSION: Herpes zoster is a common viral infection and can be prevented when necessary by patient isolation and passive prophylaxis with varicella-zoster immune globulin. An experimental live vaccine also prevents varicella, but problems regarding its virulence for immunosuppressed patients and the durability of the protective response are still being addressed.

KEY WORDS: Herpes zoster, Varicella Zoster, Shingles.

INTRODUCTION

Herpes zoster (or simply zoster), commonly known as shingles, is a viral disease characterized by a painful skin rash with blisters in a limited area of the body, often in a stripe. This is produced by reactivation of latent varicella zoster virus (VZV) from the dorsal root ganglion of sensory nerves commonly seen in the elderly, but it may also present in younger patients or after intrauterine infection.¹

The reactivation of VZV from latency is not fully understood. However, VZV-specific cell-mediated immunity has been shown to be a major factor in determining reactivation of VZV. Cell-mediated VZV-specific immunity decreases with age and in patients with certain malignancies. These groups have much higher rates of herpes zoster.² Patients with hypogammaglobulinemia (a defect of humoral but not cellular immunity) do not have a higher rate of zoster. This supports the concept of an important role for cell-

mediated immunity in the pathogenesis of VZV infection.

The virus may spread from one or more ganglia along nerves of an affected segment and infect the corresponding dermatome (an area of skin supplied by one spinal nerve) causing a painful rash.³⁻⁴ Although the rash usually heals within two to four weeks, some sufferers experience residual nerve pain for months or years, a condition called post-herpetic neuralgia. Throughout the world the incidence rate of herpes zoster every year ranges from 1.2 to 3.4 cases per 1,000 healthy individuals, increasing to 3.9-11.8 per year per 1,000 individuals among those older than 65 years of age.⁵

The non-specific symptoms are fever, malaise and headache⁶ commonly followed by sensations of burning pain, itching, hyperesthesia (oversensitivity), or paresthesia ("pins and needles": tingling, pricking, or numbness).⁷

The pain may be extreme in the affected dermatome,

with sensations that are often described as stinging, tingling, aching, numbing or throbbing, and can be interspersed with quick stabs of agonizing pain.⁸

The diagnosis of herpes zoster is made through history, complete physical and relevant clinical examination (depending upon the dermatome involved). Laboratory tests are also available to diagnose herpes zoster. The most popular test detects VZV-specific IgM antibody in blood; this only appears during chickenpox or herpes zoster and not while the virus is dormant.⁹ In a recent study, samples of lesions in patients with presumed herpes zoster were tested with PCR or with viral culture.¹⁰ The aims of treatment are to limit the severity and duration of pain, shorten the duration of a shingles episode, and reduce complications. Symptomatic treatment is often needed for the complication of postherpetic neuralgia.¹¹ The prevalence of herpes zoster in Pakistan is 41.8%.¹²

Due to increased flow of patients with herpes zoster in the daily OPD of our hospital this study was designed to present data that will provide knowledge and information in the field of dermatology, medicine, statistics and epidemiology. The study was mainly focused on frequency and pattern of herpes zoster infection in patients presented to Liaquat University Hospital, Hyderabad. Early identification and eradication of herpes zoster infection can prevent such patients to develop certain severe complications.

PATIENTS AND METHODS

The study was conducted in the Department of Dermatology at Liaquat University Hospital, Hyderabad (a tertiary care 1500 bedded hospital) from March 2008 to August 2008. All the patients who attend the skin OPD with different presentations, diagnosed as herpes zoster infection and were above 12 years of age of either gender were evaluated and enrolled in the study. The workup was also done for referred suspicious cases of herpes zoster and after confirmation of diagnosis; such cases were also taken in our inclusion criteria. Patient's demographic data, symptoms, dermatome involved, associated systemic disease and complications were noted on a pre-designed proforma. The technique used for sample collection was non-probability purposive. Diagnosis was established by history, relevant clinical examination and according to the CDC guidelines 2005 that states:

"Diagnoses of Herpes Zoster is primarily clinical presentation: (May be all or some of the following)

1. History of chicken pox in younger years
2. Presence of prodromal symptoms
3. Possible eruption of Maculopapular/vesicular rash.

4. Neuropathic pain that follows the dermatomal path.
5. Possible presence of either or all: Allodynia, Hyperalgesia, Dysethesia.
6. Positive PCR

However, the investigations / tests are rarely helpful and needed most of the time to confirm diagnosis.

The ophthalmologist opinion was also taken for patients who had eye symptoms. Informed consent was taken from every patient or from attendant of patients after full explanation of procedure regarding the study, and all such maneuvers were under medical ethics. The data were saved and analyzed in SPSS version 10.00. The frequency and percentage of herpes zoster was calculated by detecting the number of positive cases while the pattern was assessed through presentation of patient, dermatome involved and complications of herpes zoster. The frequency and percentage was also calculated for gender distribution. The mean and standard deviation was calculated for age. The non-cooperative patients or who refused to give consent or did not have interest to participate in the study were considered to be in exclusion criteria.

RESULTS

During the six months study period we recruited 110 subjects with herpes zoster. There were 81 (76%) males and 29 (26%) females. Majority (80%) of the subjects was presented to Department of Dermatology. The suspicious subjects of herpes zoster from medicine and gynaecology department were referred to Department of Dermatology for expert opinion and after detail history and relevant examination 18 (16%) subjects from Medicine Department and 4% subjects from Gynaecology/Obstetric Department were diagnosed as herpes zoster. Most of the patients i.e. 85 (77%) presented between 1-5 days whereas 15 (14%) cases between 5-10 days and 10 (9%) cases between 10-15 days. The prodromal symptoms were recorded in 80 (73%) patients. The prodromal symptom observed were paresthesia in 40/80 (50%), itching in 35/80 (44%) patients, tingling in 15/80 (19%) patients, burning in 10/80 (13%) patients, watering from eyes in 12/80 (15%) patients and headache and fever in 20/80 (25%) patients. The most common presenting complaint was rash with pain in 95 (86%) patients; the type of pain was burning pain in 65 patients, pricking pain in 18 patients and shooting pain in 12 patients. The dermatome involved were thoracic in 78 (71%) patients, cervical in 08 (7%) patients, lumber in 10 (9%) patients, the trigeminal nerve in 12 (ophthalmic branch in 06 patients, mandibular branch in 04 pa-

tients and maxillary branch in 02 patients) and sacral in 02 patients. The systemic diseases seen in association with herpes zoster were diabetes mellitus in 27 (25%) patients, pulmonary tuberculosis in 22 (20%) patients, epilepsy in 04 patients, systemic lupus erythematosus in 02 patients and chronic renal failure (CRF) already on haemodialysis in 17 (15%) patients. The complications observed were secondary infection in 42 (38%) patients, post-herpetic neuralgia (PHN) in 15 (14%) patients, scarring in 18 (16%) patients, hypopigmentation in 9 (8%) and hyperpigmentation in 11 (10%) patients. The eye complications were identified only in 2% of patients and were diagnosed as corneal ulcer and eye inflammation (herpes zoster ophthalmicus) by the ophthalmologist. Most frequent age group was 31-40 years (**Table I**) while most (35%) subjects were labourors (**Table II**). Majority (71%) belonged to rural areas (**Figure I**).

**TABLE I:
AGE DISTRIBUTION OF PATIENTS WITH HERPES ZOSTER (n=110)**

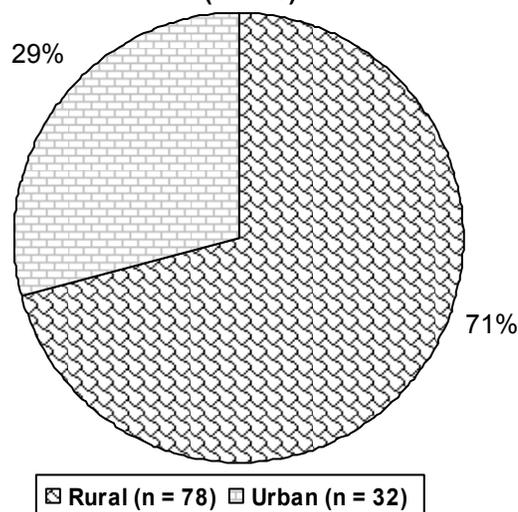
Age	Frequency	Percentage
12 - 20	07	6
21 - 30	15	14
31 - 40	67	61
41 - 50	13	12
51 - 60	01	1
61 - 70	07	6

Mean±SD age = 38.92±10.8 years

**TABLE II:
FREQUENCY OF HERPES ZOSTER INFECTED PATIENT ACCORDING TO THEIR OCCUPATION (n=110)**

Occupation	Frequency	Percentage
Labourer	38	35
Farmer	22	20
Student	18	16
House wife	15	14
Govt. employ	07	6
Driver	06	5
Others	04	4

**FIGURE I:
DEMOGRAPHICAL DISTRIBUTION OF PATIENTS (n=110)**



DISCUSSION

Herpes zoster (shingles) is a skin rash caused by the same virus that causes chickenpox, anyone who has had chicken pox can develop herpes zoster. After the chicken pox clears, the virus remains dormant (inactive) within certain nerve cells of the body. When the virus reactivates, zoster develops which can be quite painful. The present study was focused on the frequency and pattern of herpes zoster in patients attending the tertiary care hospital. Our study diagnosed 110 patients as herpes zoster infection; the mean±SD age was 38.9182±10.79 whereas a study published in Indian Journal of Dermatology showed that the mean age of patients with herpes zoster was 37.65 years.¹³ In our study the duration of presentation in majority of patients was within 1-5 days whereas it is five days in the study by Oh et al.¹⁴ In present study the majority of subjects with herpes zoster were males while the similar predominance was seen in the study conducted in Africa.¹⁵ In our study more than one dermatome involved in 72 (65%) patients and the common clinical feature observed was rashes with pain in 86% patients, however, similar clinical features and multiple dermatomal involvement was observed in the study by Tyndall et al.¹⁶ In our study dermatome involved were thoracic, cervical, lumbar, ophthalmic branch, mandibular branch and maxillary branch of trigeminal nerve, and sacral segment. This is in contrast to the study by Goh and Khoo¹⁷ in which common dermatomes involved were thoracic in 45%, cervical in 23% and ophthalmic in 3% cases. The complications of herpes zoster add significantly to the morbidity of these patients. The common complications observed in our series were secondary infection, post-herpetic neuralgia (PHN) and scarring, however such compli-

cations were also observed in the study of Simpson.¹⁸ In present study, there was an increased frequency of duration of pain and post-herpetic neuralgia in patients with advance age so this finding concurs with that reported by De-Morgas et al.¹⁹

Regarding the occupation/profession, our series found that farmers were more prone to acquire infection. The regular exposure to potential immuno-toxicants in particular spray cleaners, silica dust, radiation, indoor use of pesticides and potential occupational exposure associated with an increased risk to acquire herpes zoster infection.²⁰ The association between herpes zoster and occupation was also more prominent in farmers or farm workers.²⁰ Beside this herpes zoster was more often found among participants who uses corticosteroids for prolong period. The increasing use of immunosuppressive therapy in the treatment of patients with conditions as cancer and asthma, and the rising number of recipients of organ transplants, may explain a portion of the increase in the incidence of herpes zoster.²¹

The exposure to radiation was also strongly associated with herpes zoster. However, because respondents were surveyed at one point in time, it is not clear whether these exposures preceded or followed herpes zoster episodes. Although the incidence of zoster is most notably increased in severe immunodeficiencies such as HIV infection and immunosuppressive therapy, less marked immune suppression, such as that, which occurs in older populations, is also manifested by an increased risk of herpes zoster.^{22,23}

The racial differences in the occurrence of herpes zoster have been described recently²⁴, indicating a higher risk of zoster among whites than blacks. In present study the common complications identified in patients with herpes zoster were secondary bacterial infection, post-herpetic neuralgia and scarring. However secondary bacterial infection in patients with herpes zoster was observed in the study of Leung et al.²⁵ In our study the post-herpetic neuralgia was observed in 14% patients and most of them were above 50 years of age. On the other hand a separate study conducted in Netherlands showed post-herpetic neuralgia in 11.7% patients and majority of patients were above 50 years of age, suggesting that the risk of developing PHN increases with age.²⁶ In our series scarring was observed in 18 patients and our finding resembled with the study of Requena et al.²⁷ The present study also detect some hypo and hyper-pigmented lesion and this is similar to the study of Straus that also identified such lesion, which persist for months to years.³⁰

CONCLUSION

It is concluded that herpes zoster is a common infectious disorder in our setup with presenting symptoms such as pain, itching and fever. Herpes zoster can give rise to unusual complications, many of which have serious or even life-threatening sequelae. The rarity of many zoster complications prohibits epidemiological study and consequently the incidence and burden of these conditions in many regions is unknown. Therefore proper education and counseling should be delivered to community, workup must be done and vaccination program need to be initialized and in the long run this will result in reduction in the incidence of herpes zoster infection.

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