

Original Research Article

Herpes zoster as a presentation of diabetes mellitus

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ABSTRACT

Background: *Herpes zoster* (HZ) occurs due to reactivation of latent *Varicella zoster* virus infection and affects in dermatomal pattern. HZ affects elderly and immunocompromised population. Some earlier studies shows that HZ is common in diabetes patients. Our aim was to find out incidence of diabetes mellitus in patients with HZ.

Methods: Study was done on newly diagnosed HZ patients attending out door of UPUMS Saifai. Inclusion criteria include newly diagnosed case of HZ without previous history of diabetes. Patients with known immunocompromised state like HIV infection, corticosteroid therapy, chemotherapy, neoplastic disease etc were excluded. Fasting, post-prandial blood sugar and HbA1C of all patients done.

Results: 22.54% patients with HZ had diabetes and 7.75% patients had impaired glucose tolerance at presentation. Undiagnosed diabetes is common in HZ patients.

Conclusions: Our study indicates that incidence of undiagnosed diabetes is high among HZ patients and hence routine screening for diabetes should be done in all HZ patients.

Keywords: Diabetes mellitus, *Herpes zoster*, Impaired glucose tolerance, Immunocompromised state

INTRODUCTION

Herpes zoster (HZ), also known as shingles, is typically characterised by painful, blistering dermatomal rash.¹ *Herpes zoster* (HZ) is the reactivation of latent *Varicella-zoster* virus (VZV) infection that lies dormant in the dorsal root ganglia after an initial attack of chicken pox.²

The estimated lifetime risk of HZ in the general population is approximately 30%, with the risk increasing sharply after 50 years of age.³

Diabetes mellitus is the most common of all endocrine and metabolic disorders. Diabetes mellitus can be broadly categorised as type I and type II.⁴ Criteria for the diagnosis of diabetes mellitus.⁵

- Symptoms of diabetes plus casual plasma glucose concentration ≥ 200 mg/dl (11.1 mmol/l). Casual is defined as any time of day without regard to time since last meal. The classic symptoms of diabetes include polyuria, polydipsia, and unexplained weight loss. or
- FPG ≥ 126 mg/dl (7.0 mmol/l). Fasting is defined as no caloric intake for at least 8 h. or
- 2-h postload glucose ≥ 200 mg/dl (11.1 mmol/l) during an OGTT. The test should be performed as described by WHO, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.
- In the absence of unequivocal hyperglycemia, these criteria should be confirmed by repeat testing on a different day. The third measure (OGTT) is not recommended for routine clinical use.

Immunocompromised state is the potential risk factor for HZ.⁶ Immunity decreases in elderly, HIV infection, Corticosteroid therapy, chemotherapy, pregnancy and in patients receiving immunosuppressive therapy which results in increase in both incidence and severity of HZ.^{7,8}

Early detection of diabetes mellitus can prevent complications of diabetes and all patients with risk factors should be screened for diabetes.⁹ There are few report citing that HZ is more frequently occurs in diabetes mellitus.¹⁰⁻¹²

This study is designed to access incidence of undiagnosed diabetes mellitus among patients with HZ.

METHODS

It was an cross sectional study which was carried out on patients of HZ attending out door of Medicine and Dermatology Department of UPUMS Saifai, from October 2016 to March 2017. Prior approval of institutional ethical committee was taken to conduct the above study.

Inclusion criteria

- A case of *Herpes zoster* of age group 15-60 years.

Exclusion criteria

- Patients of HZ with altered sensorium, disturbed mental state, pregnant and lactating females.
- Patients of HZ having any other diseases known to cause immunosuppression like HIV infection, Steroid abuse, chemotherapeutic agents, chronic alcohol intake, malignancy, pancytopenia etc.
- Patients with renal failure, liver failure and cardiac failure.

Sample Size: All patients satisfying inclusion and exclusion criteria were included in study.

All patients were subjected to a detailed history and thorough clinical examination including local examination by dermatologist after obtaining his/her informed consent. Investigations: Fasting and Post prandial blood sugar, serum creatinine, blood urea, haemoglobin, total and differential counts, HIV, HbA1C. Statistical analysis was done by SPSS version 22.0

RESULTS

Total 142 patients were included in the study who satisfied the inclusion and exclusion criteria. In this study, mean age was 47.75 years with minimum age 17 years and maximum age 60 years (Figure 1).

Out of total 142 patients, 63 patients (44.37%) were female and 79 patients (55.63%) were male. Sex ratio was 1.25:1 (Figure 2).

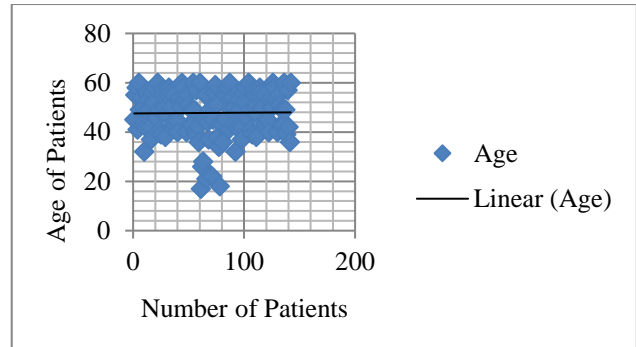


Figure 1: Age distribution.

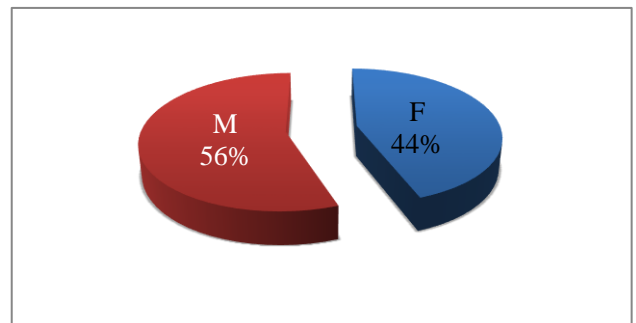


Figure 2: Sex distribution.

Out of 142 patients, 30 patients (21.13%) had positive family history of diabetes, 112 patients (78.87%) had no family history of diabetes (Figure 3).

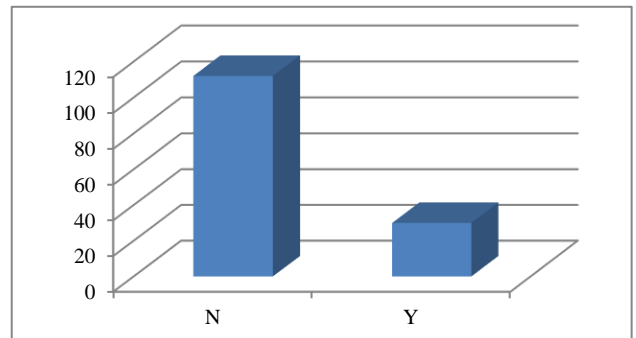


Figure 3: Family history.

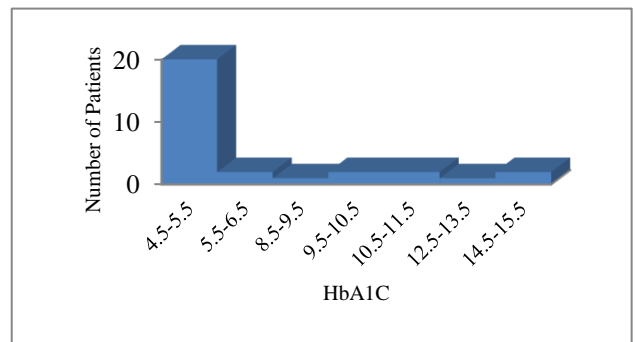


Figure 4: HbA1C levels in patients with positive family history.

Out of 30 patients (21.13%) having positive family history, 20 patients (14.08%) were euglycemic, 2 patients (1.41%) had impaired glucose tolerance, 8 patients (5.63%) had undiagnosed diabetes mellitus at presentation (Figure 4).

Out of 112 patients (78.87%) having negative family history of diabetes mellitus, 79 patients (55.63%) were euglycemic, 9 patients (6.34%) had impaired glucose tolerance, 24 patients (16.90%) had undiagnosed diabetes mellitus at presentation (Figure 5).

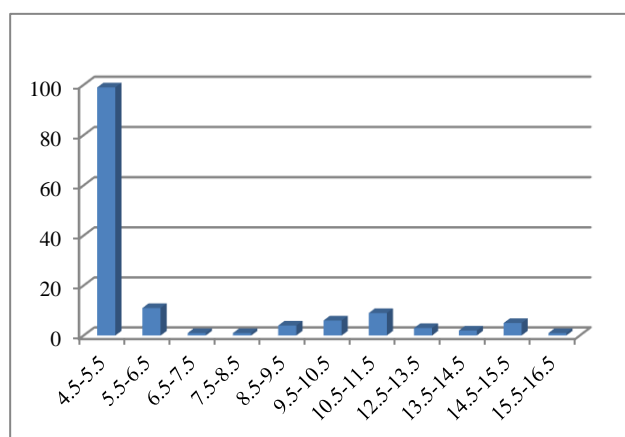


Figure 5: HbA1C levels in study population.

Out of total 142 patients, 11 patients (7.75%) were found to have impaired glucose tolerance, 32 patients (22.54%) were diagnosed as a case of diabetes mellitus and 99 patients (69.72%) were found to be euglycemic at presentation. Among newly diagnosed diabetes mellitus patients, HbA1C was found more than 10% in 22 patients (15.49%) and less than 10% in 10 patients (7.04%). 3 patients had HZ in more than one dermatome and their HbA1C was very high (>14%).

DISCUSSION

Present study showed that 22.54% patients had undiagnosed DM, and 7.75% patients had impaired glucose tolerance at the time of presentation among HZ patients. In McCulloch study 12.7% of 1017 diabetic patients had past history of HZ and 61% of these patients developed HZ before the onset of DM.¹³ In accordance with our study, Neu and Rodiek detected disorder of glucose utilization in 16 of 28 HZ patients.¹⁰ In a study among 140 patients with HZ, 13.5% of patients had DM, which is significantly higher than general incidence of 2%.

Considering patients over 50 years old separately, the incidence goes up to 17%.¹⁴ In Cerny study 12 patients with recurrent HZ were evaluated, 3 out of 12 patients had DM.¹⁵ In 31 cases of HZ with neurological complications, smoking with diabetes was the putative risk factors in 53%.¹¹ A prospective study on 590 patients with HZ, the clinical spectrum of the disease was not

different from general population which contradict our study and they concluded that HZ is not a risk factor for DM and diabetes was not a risk factor for HZ.¹⁶

CONCLUSION

Based on our study we conclude that incidence of undiagnosed DM is high among HZ patients which may be due to impairment of immunity in diabetes. Hence, we recommend routine screening for diabetes mellitus in HZ patients. Due to small data and demographic variation among different regions of world more research is needed to test this hypothesis.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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