

Factors Associated with Postherpetic Neuralgia among Thai Patients with Herpes Zoster at the Dermatology Clinic, Siriraj Hospital: A Retrospective Cohort Study

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ABSTRACT:

Introduction: Herpes Zoster (HZ) is caused by the reactivation of latent varicella zoster virus in the sensory ganglia following an outbreak of chickenpox. The aim of this study was to evaluate the characteristics of HZ in Thai patients.

Objective: To describe the clinical characteristics of patients with HZ attending the outpatient dermatology clinic at Siriraj Hospital.

Materials and Methods: This retrospective cohort study included patients diagnosed with HZ at the Department of Dermatology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand between December 2015 and December 2016. Data on patients' characteristics, underlying diseases, clinical manifestations, affected sites, treatments, and complications were obtained from medical records.

Results: A total of 432 patients with HZ were included. The mean age was 57.7 years, with a predominance of female patients (59.0%). The most commonly affected dermatome was thoracic (35.0%). Postherpetic neuralgia (PHN) was the most frequent complication (18.8%) and was significantly associated with older age (64.2 vs. 56.8 years, $P < 0.001$), female gender (69.1% vs. 56.6%, $P = 0.038$), presence of comorbidities (75.3% vs. 60.6%, $P = 0.013$), and gabapentin use (60.8% vs. 37.5%, $P < 0.001$).

Conclusions: This study highlights the demographic and clinical characteristics of HZ among Thai patients. PHN was significantly more common in older patients, females, and those with comorbidities. The increased use of gabapentin in PHN cases reflects its role in standard clinical management. These findings may support early antiviral treatment and targeted prevention strategies in high-risk groups.

Key words: Characteristics, Herpes Zoster, Postherpetic neuralgia, Dermatomal distribution, Retrospective, Siriraj Hospital, Thailand

Introduction

Herpes zoster (HZ) is caused by the reactivation of the varicella-zoster virus, which remains dormant in the sensory ganglia following a primary infection earlier in life. The lifetime risk of developing HZ is estimated to be 10%–30% in the general population¹. While

recurrent HZ is rare, it occurs more frequently in immunocompromised individuals or those with chronic disease^{2,3}.

Prodromal symptoms, such as itching and a burning pain, typically appear in the affected dermatome and persist for a few days before the onset of skin lesions⁴. HZ is characterized by a

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unilateral rash with dermatomal distribution, accompanied by vesicular eruption. Postherpetic neuralgia (PHN) is the most common HZ complication, occurring in 10%–20% of HZ patients^{5,6}. Other complications include HZ ophthalmicus, HZ oticus, and secondary bacterial skin infections³. HZ is treated with systemic antiviral medications, such as oral or intravenous acyclovir, with intravenous administration used in cases of disseminated infection⁷.

Methods

A review of medical records was conducted for 432 patients aged 18 years or older who

attended the Dermatology Clinic, Siriraj Hospital, between December 2015 and December 2016. These patients were diagnosed by dermatologists with HZ (ICD-9 code, B02). The diagnosis was made when clusters of vesicles on an erythematous base with a unilateral and dermatomal distribution were observed. This study was approved by the Siriraj Institutional Review Board, Faculty of Medicine, Siriraj Hospital. Data on patient characteristics, underlying diseases, clinical manifestations, affected sites, treatments, complications, and misdiagnoses were obtained from medical records.

Table 1 Characteristics and clinical data of herpes zoster patients

Characteristics	Total number	Number (%)
Age (years), mean (SD)	432	57.7 (17.0)
Gender, female	432	255 (59.0)
Underlying diseases*		
Hypertension	432	144 (33.3)
Dyslipidemia	432	91 (21.1)
Diabetes mellitus	432	61 (14.1)
Cancer	432	47 (10.9)
Autoimmune diseases	432	28 (6.5)
HIV infection	432	14 (3.2)
PHN† age (years), mean (SD)	81	63.9 (12.4)
Immunosuppressive drugs	432	69 (16.0)
Hutchinson's sign	432	11 (2.5)
Recurrent herpes zoster	432	27 (6.3)
Distribution of Herpes Zoster		
Side		
Right	416	210 (50.4)
Left	416	202 (48.6)
Both	416	4 (1.0)
Dermatome		
CN† V1	359	56 (13.0)
CN† V2	359	20 (4.6)
CN† V3	359	19 (4.4)
Cervical	364	66 (15.3)
Thoracic	361	151 (35.0)
Lumbar	358	51 (11.8)
Sacral	361	19 (4.4)

*One patient might have had more than one underlying disease

◆PHN Postherpetic neuralgia

†CN cranial nerve

Statistical analyses

Descriptive statistics were used to summarize the data. Categorical variables were analyzed using the Chi-square test or Fisher's exact test, while continuous data were analyzed using the independent t-test. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) for Windows, version

18.0 (SPSS Inc., Chicago, IL, USA).

Ethics approval

This study was approved by the Siriraj Institutional Review Board, Faculty of Medicine, COA Si 012/2018 Siriraj Hospital (approval number 626/2560(EC4)).

Table 2 Treatment and complications

Characteristics	Number (%)
Treatment*	
Antivirals	
Acyclovir	385 (86.8)
Valacyclovir	50 (11.6)
Famciclovir	3 (0.7)
Antibiotics	
Fusidic acid cream	364 (84.3)
Oral antibiotics	30 (6.9)
Pain control medications	
Gabapentin	179 (41.4)
Tramadol	10 (10.8)
Nortriptyline	150 (34.7)
Amitriptyline	155 (36.4)
Vitamin	
Vitamin B1-6-12	187 (43.3)
Complications*	121 (28.0)
Postherpetic neuralgia	81 (18.8)
Secondary bacterial infection	29 (6.7)
Eye involvement	21 (4.9)
Ear involvement	4 (0.9)
Facial palsy	2 (0.5)

* One patient might have had more than one treatment/complication

Results

A total of 432 patients were included in the study, with a mean (SD) age of 57.7 (17) years. Female patients accounted for the majority, representing 255 (59.0%) of the subjects. Most patients (99.0%) presented with a single affected dermatome. The involvement of left-sided and right-sided dermatomes was nearly

equal, at 50.4% and 48.6%, respectively. The thoracic dermatome was the most frequently affected (35.0%). Trigeminal nerve involvement was observed in 22.0% of the patients, with the V1 branch being the most commonly affected (56 patients, 13.0%). Other affected dermatomes included the cervical (15.3%), lumbar (11.8%), and sacral (4.4%)

regions. Disseminated herpes zoster was found in six patients (1.4%). A history of recurrent herpes zoster was documented in 27 patients (6.3%). Patient characteristics are presented in Table 1. Treatment commonly included acyclovir, valacyclovir, famciclovir, pain medications, vitamin B, topical antibiotics, and oral antibiotics, as outlined in Table 2. HZ complications were found in 121 patients (28.0%), with postherpetic neuralgia (PHN) being the most frequent, occurring in 81 patients (18.8%). The second most common complication was secondary bacterial skin

infections, observed in 29 patients (6.7%), with additional complications including eye involvement, ear involvement, and facial palsy. Patients with PHN had a significantly higher mean age (64.2 years) compared to those without PHN (56.8 years, $P < 0.001$). A significantly higher proportion of PHN patients (69.1%) were female compared to those without PHN (56.6%, $P = 0.038$). PHN was also significantly associated with the presence of comorbidities ($P = 0.013$) and gabapentin use ($P < 0.001$), as shown in Table 3.

Table 3 Characteristics and treatment of herpes zoster patients with postherpetic neuralgia

Characteristics	All (n = 431)	Having PHN* (n = 81)	Not having PHN* (n = 350)	P value
Age (years), mean (SD)	57.7 ± 17.0	64.2 ± 11.5	56.8 ± 17.8	<0.001*
Gender, female, n (%)	254 (58.9)	56 (69.1)	198 (56.6)	0.038*
Have comorbidity, n (%)	273 (63.3)	61 (75.3)	212 (60.6)	0.013*
Immunosuppressive drugs, n (%)	68 (15.8)	14 (17.3)	54 (15.4)	0.680
Distribution of Herpes Zoster, n (%)				
Side (n = 415)				0.599
Right	209 (50.4)	40 (49.4)	170 (50.7)	
Left	202 (48.7)	41 (50.6)	161 (48.1)	
Both	4 (1.0)	0 (0.0)	4 (1.2)	
Dermatome				
Trigeminal (n = 363)	88 (24.2)	13 (20.3)	75 (25.1)	0.419
Cervical (n = 363)	66 (18.2)	14 (21.9)	52 (17.4)	0.399
Thoracic (n = 360)	151 (41.9)	32 (50.0)	119 (40.2)	0.150
Lumbar (n = 357)	51 (14.3)	5 (7.9)	46 (15.6)	0.113
Sacral (n = 360)	19 (5.3)	3 (4.7)	16 (5.4)	0.816
Pain control medications, n (%) (n = 426)				
Gabapentin	178 (41.8)	48 (60.8)	130 (37.5)	<0.001*
Amitriptyline	155 (36.4)	33 (41.8)	122 (35.2)	0.270
Nortriptyline	149 (35.0)	29 (36.7)	120 (34.6)	0.721
Tramadol	19 (4.5)	6 (7.6)	13 (3.7)	0.135

♦PHN Postherpetic neuralgia

Discussion

The exact incidence of HZ in Thailand is not known. In our study, the mean age of the 432 HZ patients was 57.7 years, which aligns with findings from Aunhachoke et al.'s study⁸. The

mean age of patients who developed PHN was 64.2 years, consistent with a study conducted in China that reported an increased prevalence of PHN increased with age⁶. Also, in our study, there was a female predominance (69.1%)

among patients with PHN, which supports previous findings that being female appeared to be a risk factor for PHN⁹. Additionally, 14.1% of the HZ patients had diabetes mellitus as a comorbid condition, a proportion similar to that reported by Antoniolli et al. (2019)¹⁰. In our study, having comorbid conditions was significantly associated with PHN, consistent with previous research indicating that approximately 75% of PHN patients had at least one comorbidity, most commonly hypertension or diabetes, suggesting that chronic conditions may predispose individuals to PHN⁶.

The phenomenon of bilateral distribution in HZ, known as herpes zoster duplex bilateralis, is extremely rare^{11,12}. In our study, the incidence was 1.0%, which is comparable to findings by Yoo et al.¹³ Previous research has indicated that bilateral manifestations can occur in both immunocompetent and immunocompromised patients¹⁴.

The most frequently affected dermatomes in our study were thoracic dermatomes, followed by the cranial, which is consistent with findings from Bader et al. (2013)². Interestingly, our study observed nearly equal involvement of left- and right-sided dermatomes.

Systemic antiviral therapy with acyclovir, valacyclovir, or famciclovir was prescribed for most patients. Interestingly, fusidic acid cream was prescribed to 84.3% of the patients. Postherpetic neuralgia, a clinical consequence of HZ, was frequently observed in our study. The frequent use of gabapentin for neuropathic pain management in these patients likely reflects common practice at our institution, where gabapentin is widely recognized as one of the first-line pharmacologic treatments for PHN, as supported by clinical recommendations and expert statements due to its efficacy and favorable tolerability profile¹⁵.

This study has some limitations. The data analyzed were from 2015 to 2016, which may appear dated. However, this period represented the most complete and consistently documented

timeframe for retrospective chart review at our center. The dataset included a robust sample size of 432 patients diagnosed with herpes zoster, making it one of the most comprehensive retrospective cohorts available at our institution. While this may limit the temporal generalizability of the findings, the results nonetheless offer valuable insights into the clinical characteristics of HZ in Thai patients and serve as a useful benchmark for future research.

Additionally, because this was a single-center study conducted at a tertiary care hospital, the findings may not be fully generalizable to the broader Thai population. Future studies with larger sample sizes from this center or multicenter studies using more recent data are warranted to validate these results and to explore potential regional and environmental influences.

Despite these limitations, our findings confirm known associations, such as the increased risk of postherpetic neuralgia in older patients, females, and those with comorbidities, and may help inform clinical decision-making, especially with regard to identifying patients at high risk for complications. These data also support the consideration of targeted vaccination programs, particularly in elderly populations, to reduce the burden of HZ and its sequelae¹⁶.

Conclusion

This study highlights clinical characteristics of HZ in Thai patients, consistent with findings from other studies. PHN was the most common complication, significantly associated with older age, female gender, and comorbidities. These findings support early intervention and targeted prevention in high-risk populations.

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Conflict of interest declaration

All authors declare no personal or professional conflicts of interest relating to any aspect of this study.

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