International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 10; Issue 07 (A); July 2021; Page No.24739-24741
DOI: http://dx.doi.org/10.24327/ijcar.2021.4929.24741

Research Article

A COMPARATIVE ANALYSIS OF ORAL GABAPENTIN VERSUS PLACEBO IN MANAGEMENT OF POST HERPATIC NEURALGIA AT A TERTIARY CARE CENTRE, RAJASTHAN

Mahesh Prajapat.,*Kanchan Kumawat., Deepak K Mathur., Ram Singh Meena and Vijay Paliwal

Department of Dermatology, Sawai Man Singh Medical College & Hospital, Jaipur, Rajasthan. India

A R T I C L E I N F O

Article History:

Received 6th April, 2021
Received in revised form 15th May, 2021
Accepted 12th June, 2021
Published online 28th July, 2021

Key Words:

Gabapentin, Post herpetic neuralgia

A B S T R A C T

Objective- Post herpetic neuralgia is persistent pain ranging from 30 days or 6 months after the onset of herpes zoster in affected dermatome but occasionally it may persist for years. Gabapentin is an effective modality for post herpetic neuralgia management.
Material and Methods- This was a randomized double blinded controlled trial on 29 cases in each group done to assess the effectiveness of gabapentin and placebo in pain reduction of post herpetic neuralgia, to assess the difference in mean decrease in Visual Analogue Score (VAS) for pain at 4 weeks interval in patients of both groups (i.e. gabapentin vs. placebo) upto 6 months and adverse effects in the study group.
Results- At 3 months of treatment, mean VAS for pain was 2.897±2.304 in Group A whereas in Group B it was 4.03+1.86. The difference in VAS in both the groups was statistically significant (P value = 0.0004). At 6 months, mean VAS was 0.758±1.3 and 2.03+1.70 in Group A and Group B respectively; which was statistically significant (P value = 0.0021).
Conclusion- We conclude that gabapentin is a common, safe and effective modality for PHN.

INTRODUCTION

Herpes zoster is reactivation of varicella zoster virus following a clinical or sub-clinical varicella (chicken pox) infection in early life or occasionally in utero.[1] Post herpetic neuralgia is persistent pain ranging from 30 days or 6 months after the onset of herpes zoster in affected dermatome but occasionally it may persist for years.[2]Studies have shown that about a third of population experience herpes zoster during their lifetime.[3] The incidence of post herpetic neuralgia increases particularly after the age of 60 years. Medications prescribed for herpes zoster include antiviral agents, corticosteroids, analgesics, non-steroidal anti-inflammatory agents (NSAIDs) and tricyclic anti-depressants.[4]Gabapentin is an effective modality for post herpetic neuralgia treatment.[5] Gabapentin is a lipophilic analogue of the neurotransmitter. Despite it being GABA analogue it does not bind to $GABA_A$ or $GABA_B$ receptors. It neither converts to GABA nor it is a GABA agonist and even it is not an inhibitor of GABA re-uptake or degradation. Gabapentin may promote non vesicular release of GABA. Gabapentin has antihyperalgesic and antiallodynic properties also. Hence, the therapeutic response was studied at this period of time versus placebo control study.

Aims and objectives

This randomized controlled study was done to assess the effectiveness of gabapentin and placebo in pain reduction of post herpetic neuralgia and to assess the difference in mean decrease in Visual Analogue Score (VAS) for pain at 4 weeks interval in patients of both groups (i.e. gabapentin vs. placebo) upto 6 months and adverse effects in the study group.

MATERIALS AND METHODS

This was a randomized double blinded controlled trial conducted in the Department of Skin, STD & Leprosy, SMS Hospital, Jaipur during the period of 2014-2015. The sample size taken was 29 cases in each group at 95% confidence limit and 80% power to verify the expected difference of 1.8 (2.4) in mean pain score of both groups. All herpes zoster patients presenting with complaints of pain (VAS 3>), burning and itching sensation after four weeks of healing of first rash and who gave an informed consent, were included in our study. Patients with acute VZV Infection, segmental herpes zoster and pregnancy were excluded from the study. A detailed

Corresponding author:* **Kanchan Kumawat
Department of Dermatology, Sawai Man Singh Medical College & Hospital, Jaipur, Rajasthan. India

history of presenting complaints, past history, personal history dietary habits, addiction, previous treatment taken & family history was taken. Diagnosis of PHN was made mainly on clinical grounds. Clinical examination and VAS scoring was carried out for each selected patient. Relevant data included age, gender, weight, height, blood pressure, age of onset and duration of PHN, type of pain and severity of pain by VAS Scoring were recorded in proforma. These data were classified and analyzed. Double blinding was done as the study variable is a subjective finding, the investigator collecting the variables was different from the treating physician. Group A patients were prescribed oral Gabapentin 1200mg in two divided doses for 12 weeks and Group B patients were prescribed oral placebo for a period of 12 weeks. Both the groups were then followed up for next 12 weeks. 35 patients in each group (randomized by computer generated random number table) were followed for 6 month (3 month of treatment and 3 month of follow up). VAS is usually a horizontal line, 10 cm in length, anchored by word descriptors at each end.

Statistical analysis

Continuous data were summarized in the form of mean & SD. The differences in mean were analyzed by using student 't' test. Count data were expressed in the form of proportions, difference in proportion were analyzed using chi square test.

RESULTS

Though 35 patients in Group A and 37 patients in Group B were registered but 29 patients from each group completed the study till 3 months of treatment and respective follow up.

Age	Group A	Group B	P value*
Range (years)	23-74	25-85	
Mean ± SD (years)	56.28±12.86	53.72± 16.07	0.500
Median (years)	59	55	

The age of patients receiving gabapentin ranged from 23-74 years with mean of 56.28±12.86 years and median of 59 years. The age of placebo group ranged from 25-85 years with mean and median of 53.72±16.07 years and 55 years respectively. Out of the 29 patients in group A, 16 (55.17%) were males and 13(44.83) were females with a male to female ratio of 1.23:1. Among the 29 patients in group B, 18 (62.06%) were males and 11 (37.94%) were females giving a male to female ratio of 1.63:1. The male female ratio of the group A and group B was comparable as shown in Table 1.

Table 1 showing age distribution in study group (A) and control (B). (P value =0.500)

Type of Pain	Group A (n=29)	Group B (n=29)
Burning	14	12
Sharp	8	10
Deep	4	3
Dull	2	1
Jabbing	1	3

All the patients with VAS ≥3 for pain were enrolled in this study and asked about the type of pain at the initiation of treatment .The most common type of pain perceived in both the groups was of burning in nature followed by sharp pain. (Table 2)

Table 2 showing type of pain experienced by study group (A) and controls (B) with burning pain being most common in both the groups.

Patients were also evaluated for presence of other symptoms viz. itching, burning sensation, sensitivity and weakness or paralysis. Most of the patients in both groups showed none of the symptoms other than pain.

Segment	Group A	Group B
Cranial nerve (Trigeminal)	**7**	**7**
Ophthalmic	5	5
Maxillary	0	2
Mandibular	2	0
Cervical	2	1
C3	1	1
C4	1	0
Thoracic	18	15
T2	5	1
T3	0	1
T4	3	3
T5	3	3
T6	0	2
T7	2	2
T8	2	0
T9	0	2
T10	2	0
T11	1	1
Lumbar	2	5
L1	0	3
L2	2	1
L3	0	1
Sacral	0	1
S4	0	1

Both the groups showed preponderance towards trigeminal and thoracic segments as shown in Table 3:

Table 3 showing involvement of various dermatomes in study group (A) and controls (B). The thoracic segments were most commonly affected followed by trigeminal cranial nerve.

At 3 months of treatment, mean VAS for pain was 2.897±2.304 in Group A whereas in Group B it was 4.03+1.86. The difference in VAS in both the groups was statistically significant (P value = 0.0004). At 6 months, mean VAS was 0.758±1.3 and 2.03+1.70 in Group A and Group B, respectively; the difference of which was statistically significant (P value = 0.0021).(Table 4.)

Time (in months)	Group A (Gabapentin)			Group B (Placebo)			P value
	Mean VAS	Mean decrease	Standard deviation	Mean VAS	Mean decrease	Standard deviation	
0	5.96		1.94	5.86		2.08	0.850
1	4.34	-1.62	2.18	4.79	-1.07	2.04	
2	2.89	-3.06	2.30	4.34	-1.52	1.91	
3	2	-3.96	2.22	4.03	-1.83	1.86	0.0004
4	1.27	-4.69	1.85	2.75	-3.11	1.93	
5	1.10	-4.86	1.82	2.34	-3.52	1.71	
6	0.75	-5.20	1.30	2.03	-3.83	1.70	0.0021

Table 4 showing the treatment response of study group (A) and control (B) with statistically significant decline in VAS in group A as compared to group B.

Adverse events: During the 6 month's period 8 patients from Group A had sedation and vertigo being most common (n=3) followed by weight gain (n=1) and 3 patients from Group B experienced adverse effects in the form of diarrhea in 2 patients and sedation in a one patient.None of the patients were shifted to other group according to intention to treat approach.

DISCUSSION

In present study the mean age in Group A was 56.28±12.86 years and in group B 53.72±16.07 years in this study, which is little less in comparison to the study done by Markley *et al*[6] Rowbotham *et al*[7]. According to the world population data base, 846 million people (8%) are ≥65 years and 18.5 million (3%) are ≥75 years. It may be because of lower life expectancy in Indian population 67.3 years males and 69.6 years females.[8] The gender distribution of Group A was 55.17% males and 44.83 % females while in Group B it was 62.06% males and 37.94% females which were not comparable to the study done by Markley *et al* [6] (38.1% males and 61.9% females). However, it was comparable to the study done by Rowbotham *et al*.[7] It may be because of dominant outdoor activities by males exposing them to environmental contamination of subclinical infection of varicella zoster virus. Another point is that males have higher health seeking tendency as compared to females in India. The healing time of acute varicella zoster infection is approximately 1 month [9] which is comparable to present study (21.66±8.27 days in Group A while in Group B 20.38±9.04 days).The most common form of pain in herpes zoster was burning pain nevertheless a spectrum of discomfort may be reported.[10]

In present study most common dermatomes involved were thoracic (62% in group A and 51.27% in group B) followed by trigeminal cranial nerve (24% in both groups) which was similar to that described by Carbone V *et al*.[11] It may be because of inherent tendency for thoracic segments as compared to cranial nerves and other spinal segments.

The mean VAS for pain in this study was 5.966±1.936 in Group A and 5.862±2.083 in group B which are comparable to the study done by Markley *et al*,[6] Rowbotham *et al* [7] and Gupta A *et al*.[12] It indicated that moderate pain is common in majority of cases of herpes zoster.

In a study conducted by Athanasakis K *et al*, the percentage decrease in VAS score in gabapentin group was 37.6% at the end of 6 months which is lower as compared to the present study 77.2% pain reduction.

The overall percentage of patients experiencing any adverse effects in this study were lower (27.8%) as compared to study done by Rowbotham *et al*[7]. Study conducted by Gupta A *et al* [12] using gastro retentive gabapentin, 41.2% of patients experienced adverse events. It may be because of use of higher doses (1800mg/day gabapentin) by some authors as compared to moderate doses (1200mg/day) in the present study. In our study, most common adverse effects were sedation (10.3%) and dizziness (3.1%).

CONCLUSION

Oral gabapentin is a common treatment modality for post herpetic neuralgia. There was significant decrease in PHN pain in herpes zoster in Group A as compared to Group B (p=0.0021). The most common side effect of gabapentin was sedation in group A. Hence, it is concluded that gabapentin is a safe and effective modality for PHN .

References

1. Thyregod HG, Rowbotham MC, Peters M, Possehn J, Berro M, Peterson KL. Natural history of pain following herpes zoster. Pain 2007 mar; 128(1-2): 148-56. Epub 2006 oct 27
2. Whitley RJ. Varicella zoster virus. In: Mandell GL, Bennet JE, Dolin R, editors. Principles and practice of infectious diseases. 4th ed. New York: Churchill Livingstone; 1995. pp. 1345–51.
3. Pavithran K. A clinical study of five hundred cases of herpes zoster. Antiseptic 1986;83:682-5.
4. Mario Roxas. Herpes Zoster and Postherpetic Neuralgia: Diagnosis and Therapeutic Considerations. Alternative Medicine Review. 2006;11: 102-113.
5. Jean WH, Wu CC, Mok MS, Sun WZ. Starting dose of gabapentin for patients with post herpetic neuralgia –a Dose Response study. Acta Anesthesiol Taiwan. 2005;43(2):73-77.
6. Markley G., Dunteman E, Sweeney M *et.al*. Real-world Experience With Once-daily Gabapentin for the Treatment of Postherpetic Neuralgia (PHN). Clin J Pain 2015 ;31:58-65.
7. Rowbotham M, Harden N, Stacey B, Bernstein P et.al.. Gabapentin for the treatment of post hepretic neuralgia. JAMA 1998;280:1837-42.
8. data.worldbank.org/indicator/SP.DYN.LE00.IN
9. Arvin, A. M. 1995. Varicella-zoster virus, p. 2547–2586. In B. Fields (ed.), Virology, 3rd ed. Raven Press, New York.
10. Johnson RW. Herpes zoster and postherpetic neuralgia. Expert Rev Vaccines. 2010 Mar; 9(3 Suppl):21-6.
11. Carbone V., Leonardi A, Pavese M, Raviola E *et.al*. Herpes zoster of the trigeminal nerve: a case report and review of the literature Minerva Stomatol. 2004 Jan-Feb;53(1-2):49-59.
12. Gupta A, Li S Safety and Efficacy of Once-Daily Gastroretentive Gabapentin in Patients with Postherpetic Neuralgia Aged 75 Years and Over. Drugs Aging (2013) 30:999–1008.

How to cite this article:

Mahesh Prajapat *et al* (2021) 'A Comparative Analysis of Oral Gabapentin Versus Placebo In Management of Post Herpati cneuralgia At A Tertiary Care Centre, Rajasthan', *International Journal of Current Advanced Research,* 10(07), pp. 24739-24741. DOI: http://dx.doi.org/10.24327/ijcar.2021. 4929.24741

****