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Research Article

**REVEALING THE EFFECTIVENESS IN COMBINE USE OF
VITAMIN B1, B6 AND B12 FOR TREATMENT OF DIABETIC
PERIPHERAL NEUROPATHY****¹Dr. Sana Rana, ²Dr. Maria Rasool, ³Dr. Chandf Javaria**
^{1,2,3}Bahawal Victoria Hospital, Bahawalpur Pakistan.**Abstract:**

Objective: The purpose of our study was to find out the treatment effectiveness of the diabetic peripheral neuropathy with combine use of vitamin B1, B6 and B12.

Study Design: Case control study on series of descriptive cases.

Place and Duration: This study was carried out in the time period of 12 months starting from August, 2017 to September 2018 in Medical intensive care unit of Bahawal Victoria Hospital, Bahawalpur.

Methodology: In this study the total numbers of patients selected were 310, who were having Endocrinology problem, Metabolism infection, diabetes mellitus and diabetic peripheral neuropathy. Unintentional sampling technique was used for selection of the samples. On the first visit, patients were described with Neurobion Tab (vitamin B1 & B6 100mg, B12 200cmg) for twice/day for the duration of one month and then they were called for followed checkup. According to the findings of our study the effectiveness was calculated with an enhancement in at least 2 pain points from the standard evaluated by the numerical pain rating scale.

Results: Mean age of the patients was 46.70 ± 8.60 . Ratio of males and females out of total 310 patients was as 177 (57.0%) and 133 (42.90%) respectively. Periodic duration of diabetes as 0-10, 11-20, 21-30 and >30 years was found as 84 (27.09%), 138 (44.52%), 76 (24.52%) and 12 (3.87%) in all patients. Effectiveness rate of vitamin B1, B6 and B12 combination was 86.94% (270), during the treatment of diabetic peripheral neuropathy.

Conclusion: According to the findings of our study treatment through combined vitamin B1, B6 and B12 were found effective in diabetic peripheral neuropathy.

Key words: Vitamin B1, Vitamin B6 and vitamin B12, Diabetic peripheral neuropathy.

Corresponding author:

Dr. Sana Rana,
Bahawal Victoria Hospital, Bahawalpur Pakistan.

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INTRODUCTION:

The main causes of DM (Diabetes Mellitus) are the resistance to insulin because of inertia and lack of activity [1]. DM is also known as hyperglycemia syndrome. Macrovascular or microvascular are the problems related with it [2]. Painful diabetic peripheral neuropathy is one of the most common microvascular complications of diabetes mellitus [3]. High death ratio is linked with diabetic neuropathy which is immobilizing and common diabetes mellitus complication [4]. At least one is affected by symmetric polyneuropathy among patients affected by DM of type I or type II. The prevalence increases with the increase of time. About 50% development of neuropathy was found in the patients of diabetes who were having it for duration of up to 25 years [5]. Anticonvulsant or norepinephrine selective inhibitors, serotonin reuptake inhibitors, serotonin reuptake selective, opioid analgesics and tricyclic antidepressants might be included in suggestive neuropathy treatment [6]. Paresthesia, dysesthesia and symptomatic pain can be reduced by individual or combination therapy. These agents involve alpha-lipoic acid, biotin, folic acid, L-arginine, pyridoxine, methyl cobalamin, taurine and some others [7]. The preservation of myelin sheath of nerves is done through vitamin B12 which plays an important role in the essential fatty acids metabolism. Diffusion of coenzyme independent of nerve impulses is carried out through thiamine. In all neuropathies, pyridoxal phosphate in form of vitamin B6 is included in the biosynthesis of neurotransmitter and sphingolipids [8]. Very effective therapy is combination therapy of B vitamin whereas, both monotherapy and combination therapy, decrease neuropathic symptoms and reduce the level of homocysteine in plasma / serum [9].

MATERIALS AND METHODS:

This study was held for the duration of 12 months starting from August, 2017 to September 2018 in

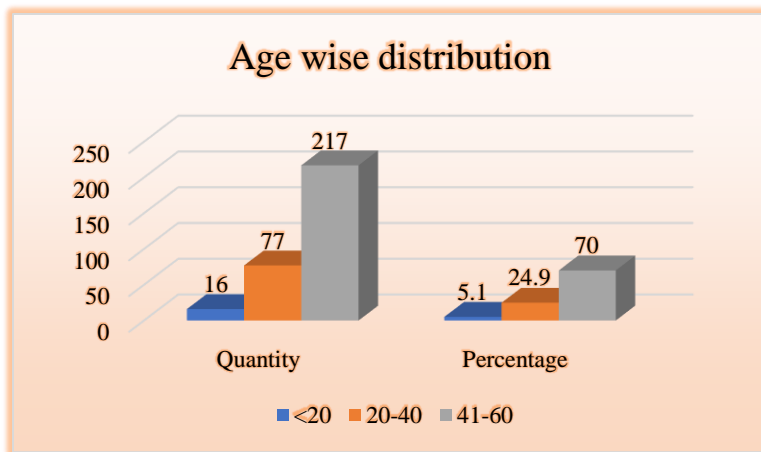
Table No 01: Patients' Age wise distribution

Age in Years	Quantity	Percentage	Mean±SD
<20	16	5.10	46.70±8.60
20-40	77	24.90	
41-60	217	70.00	
Total	310	100	

Medical intensive care unit of Bahawal Victoria Hospital (BVH), Bahawalpur. In our study the total number of patients was 310, who were having endocrinology problem, metabolism infection, diabetes mellitus and diabetic peripheral neuropathy. Unintentional sampling technique was used for selection of the patients. The efficiency of the vitamin B1, B6 and B12 in the treatment of diabetic neuropathy was calculated with a 3.50% error margin and margin reliability level as 95%. Selected diabetes mellitus patients of both genders with diabetic peripheral neuropathy, were having age from 18-60 years and 3 or more scoring scale (NRS). Those patients were not chosen for this study that were using analgesics drugs, medical evidence of soluble B6 or B12 water allergy, vitamin B1, creatinine 1.5 mg/dl and with previously known history of HbA1c 9%. A written consent was taken from all selected patients after clarifying and understanding about the purpose, procedure and importance of the present study. We calculated the symptoms of the patients using a score scale of three or more by numerical scale rating scale (NRS) before starting the treatment. On the first visit, patients were medicated with Neurobion Tab (vitamin B1 and B6 100mg, B12 200mcg) for two time in 24 hours for the period of one month and then they were called again for follow up visit. An improvement was noticed in at least two pain points from the baseline assessed by the numerical pain rating scale (NRS). All patients were assessed by NRS expert examiners as for prevention from bias. The effect's regulators were treated with stratum such as the duration of diabetes.

RESULTS:

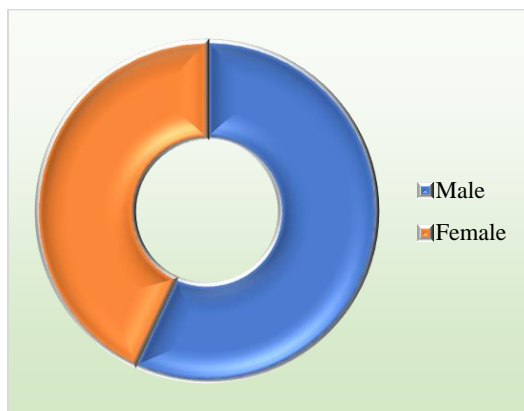
Among all selected patients there were 16 (5.10%) below 20 years of age, 77 (25.09%) were aging from 20-40 years and 217 (70%) patients were from 41-60 years of age with mean age of 47.07±09.06 years. Tabular form is shown below.



Distribution of males and females out of total 310 patients, was as 177 (57.0%) and 133 (42.90%) respectively. Table below shows the details.

Table No 02: Patients' Gender wise distribution

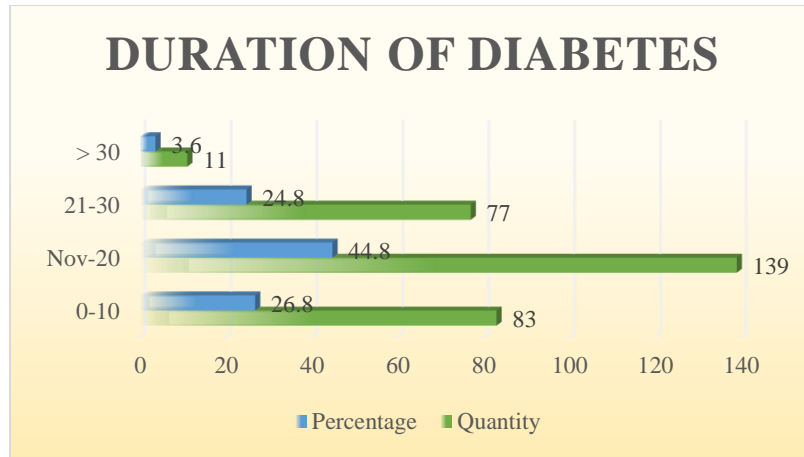
<i>Gender</i>	Frequency	Percentage
<i>Male</i>	177	57.00
<i>Female</i>	133	43.00
<i>Total</i>	310	100



Periodic duration of diabetes as 0-10, 11-20, 21-30 and >30 years was found as 84 (27.09%), 138 (44.52%), 76 (24.52%) and 12 (3.87%) in all patients. Details are shown below in the table.

Table No 03: Duration of diabetes

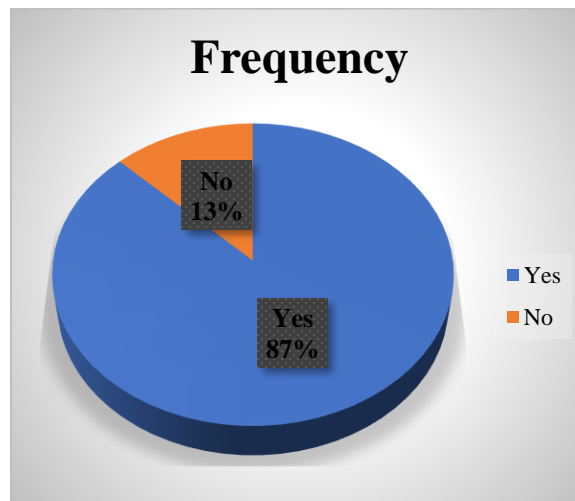
<i>Duration of Diabetes (Years)</i>	Quantity	Percentage
<i>0-10</i>	83	26.80
<i>11-20</i>	139	44.80
<i>21-30</i>	77	24.80
<i>> 30</i>	11	3.60



Effectiveness rate of vitamin B1, B6 and B12 combination was 270 (86.94%), during the treatment of diabetic peripheral neuropathy. Table below displays the data.

Table No 04: Distribution of patients by efficacy

Efficacy	Frequency	Percentage
Yes	271	87.40
No	39	12.60



DISCUSSION:

Painful diabetic peripheral neuropathy (PDPN) is one of the most important symptoms of diabetic peripheral neuropathy [3]. About 50% development of RPDP was found in the patients of diabetes who were having diabetic peripheral neuropathy and expressively changes the quality of patients' life. Its results are anxiety disorders, depression and

disturbance in sleep [5].

Active inhibitor agents like reuptake of opioid analgesics, serotonin or norepinephrine (SNRI), tricyclic antidepressants (TSA) and anticonvulsant were found useful with pharmacological RPDP treatment [6]. Results of the different studies show that it is not good way to check the oral antidiabetic drugs (OAD) to evaluate diabetic

patients' compliance [9,10]. Comparison of the compliance among the patients of diabetics by referring the earlier studies, the most beneficial agreement was observed when usage of >01 tablet was found more affective rather than one tablet in a day [5,10,11].

Patients of combination treatment were found less dependent on their regimens as compared to the single therapy patients. The combination of fixed dose treatment has shown good results and normal routine medicines also produced better results [11].

Currently it is found that many options of neuropathic treatment are available for the patients. Among all the options of treatment the best and most efficient options are comprise on the injection therapy, prescription and physiotherapy. The diagnostic of the primary reasons in the early stages and the proper supervision may minimize the hazard of nerve damage with continuity. Just as an example, by controlling the diabetes the diabetic neuropathy can be minimized, mostly it can be minimized with improvement of the chronic renal failure and by using the renal dialysis neuropathy [12]. The treatment by the drugs is the temporary solution because the drugs can decrease the intensity of the pain and they did not provide the solution for the basic reasons for complete treatment. Drugs only give the short-term solution but when the disease became progressive there should be need of more dose which can decrease successive pain. Due to the increase in doze of the drugs it is hard to manage the treatment because of the associated side effects of these drugs and further more it will surge the discomfort of the patients. The consequences of the high doze will appear in the patients in the shape of confused condition, non-toxic, constipated, wheeled or stuck in bed and the symptoms of the Alzheimer's disease may be appeared [13]. Earlier considerable remedy for diabetes neuropathies was vitamin B12 [14]. Vitamin B12 now a day is known as an effective curing for reduction of paresthesias and pain during treatment of diabetic peripheral neuropathy [15].

Following were the drawbacks of our study: Compared to the diabetes mellitus frequency, small sample size, before and after treatment to observe if there was any vitamins shortage, vitamin B1, B6 and B12 levels were not made and pain recovery was due to a better deficiency. Patients with painful neuropathy were analyzed during this research study and their affective symptoms, effects on tingling and drowsiness were not considered. Furthermore, performed a more quantitative assessment of neuropathy curing by using a numerical pain rating scale, assessing neuropathy treatment and using

electrophysiological parameters.

CONCLUSION:

According to the findings of our study, combine treatment with vitamin B1, B6 and B12 for diabetic neuropathy was found effective in reduction of pain in patients. But still, to ensure the clinical efficiency of vitamin B1, B6 and B12 and active coenzyme combination, best quality double-blind RCTs are required.

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