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Research Article

**IMPACTS OF SUPPLEMENTATION OF VITAMIN - D ON THE  
PHYSICAL ACTIONS OF THE PATIENTS WITH FAILURE OF  
HEART**<sup>1</sup>Uzma Ishfaq, <sup>1</sup>Sonia Maqbool, <sup>2</sup>Dr Asma Yasmin<sup>1</sup>DG Khan Medical College Dera Ghazi Khan, <sup>2</sup>Nishtar Hospital Multan.**Article Received:** January 2019**Accepted:** February 2019**Published:** March 2019**Abstract:**

**Objective:** The aim of this research work is to determine the effects of the supplementation of Vitamin D on physical condition of heart failure patients.

**Methods:** This was a random research work, 43 patients found with DC (Dilated Cardiomyopathy) who had no improvement in their physical status with complete heart failure treatment were the part of this research work. A supplementation of Vitamin-D on the basis of seven days for complete twelve weeks added in the treatment of the patients suffering with heart failure. This impact of this treatment evaluated on a walk of six minutes after the treatment. SPSS .19 was in use for the analysis of the collected information. T test was in use to assess the considerable impact of the supplementation of Vitamin D. P value of less than .05 considered as significant.

**Results:** On medical evaluation, majority of patients were in Class-2 of NYHA as 65.0%, the rate of NYHA Class-1, Class-3 & Class-4 was 19.0%, 9.0% and 7.0% correspondingly. The baseline average level of Vitamin-D among patient was  $16.59 \pm 3.540$  ng/ml & it enhanced to  $31.97 \pm 3.640$  ng/ml after twelve weeks with Vitamin-D supplementation. The average distance covered by the patients before treatment was  $806 \pm 380$  feet, while it enhanced to  $945 \pm 393$  feet after treatment. The average of level of Pro-BNP of patients was  $1024 \pm 635$  while it promoted to  $159 \pm 80$  after treatment with Vitamin-D.

**Conclusion:** The supplementation of Vitamin-D lowers the seriousness of heart failure as shown by the decrease in the amounts of serum Pro-BNP & it's important enhances in the a walk covering a distance in six minutes.

**Key Words:** Supplement, Vitamin D, Muscles, Cardiology, Physical Activity, Myocardial Infarction, Myopathy.

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**INTRODUCTION:**

In recent times, the failure of heart is very common issue affecting the fifteen million patients in the whole world & it is the main reason of morbidity and death in the patient with high age [1, 2]. The rate of survival was only 35.0 percent in last 5 years [3, 4]. The shortage of Vitamin-D is very common in the patients of failure of heart, the occurrence enhances with the increase of age [5]. Myopathy & weakness of the muscles is the result of the deficiency of Vitamin-D which leads to the decrease of physical actions in the patients [6]. Vitamin-D has the ability to increase the strength of muscles [7-9]. The deficiency of the Vitamin-D leads to failure of heart or many other heart diseases [10].

Therefore, the supplementation of Vitamin-D in the patients with heart failure have the ability to decrease the seriousness of this disease by initiating various cell activities [11-15]. We found blended proofs about the Vitamin D supplementation in the improvement of operational results of the patients with the heart failure [2, 7, 16-18]. This research work conducted to find out the part of supplementation of Vitamin-D on the physical activity of the patients suffering with the failure of heart.

**METHODS:**

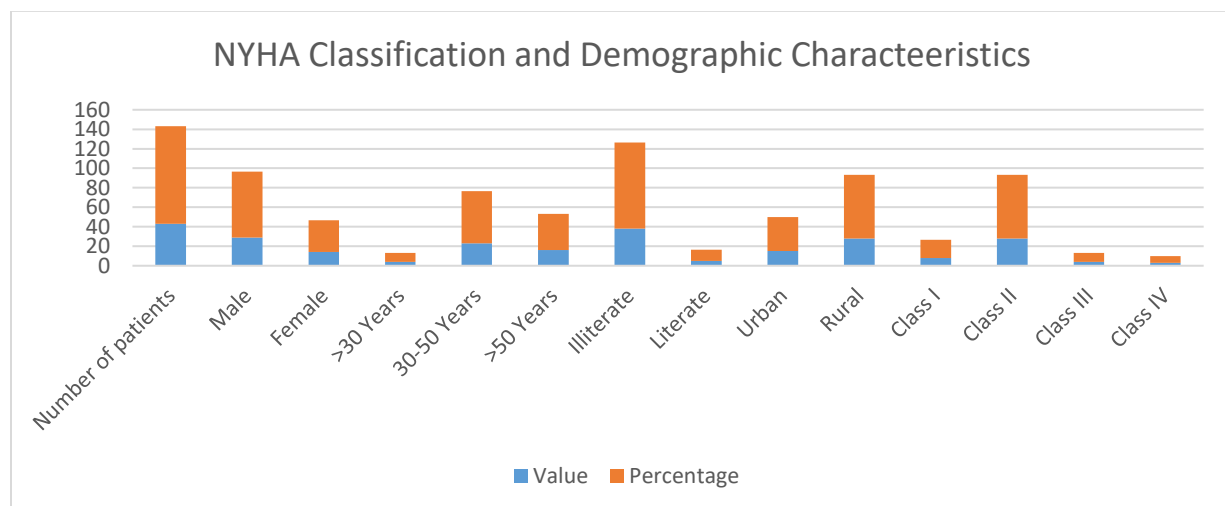
The sampling method used in research work was based on non-random. This research work conducted in cardiology department of Mayo Hospital Lahore. This study started in Jan 2018 & lasted up to end of June 2018. Selection of 78 patients carried out after the consent & thirty five patients failed to complete the follow up & 43 patients completed the requirement of the research as well as follow ups. Patients from 15-70 years of age found with no ischemic cardiomyopathy & having levels of Vitamin D greater than thirty ng/ml were the part of this research work. These patients were unable to display any betterment about physical activity on the treatment of heart failure according to the guidelines of current management of the failure of heart. In this research work, the addition of the Vitamin-D with the regimen of hypertension & examination of the patients twelve weeks after the addition of Vitamin-D.

The patients having less than fifteen years of age found with renal failure or MI (Myocardial Infarction) in the final days as well as found with disease of heart as extracted from this case work. Every patient gave a written willing certificate to participate in this research work. The supplementation of Vitamin-D 200000 IU of supplement of oral Vitamin-D provided to each patient weekly for a complete duration of twelve weeks. The samples of blood serum calcium, proteins, and levels of Vitamin-D and pro BNP extracted in the start and final stage of therapy. The walk of 6 minutes with evaluation of BP & saturation of oxygen also extracted before and after walk. The crossed distance with the time was in record of every patient. Physical checkup carried out for the assessment of seriousness of HF. Assessment of function class in every patient with the checkup of patients from their walking style, relaxation time, and dressing [19]. The walk was in use to calculate the patient's physical performance in accordance with Guyatt [20]. SPSS.19 was in use for the analysis of the collected data. The P value of less than .05 considered as significant.

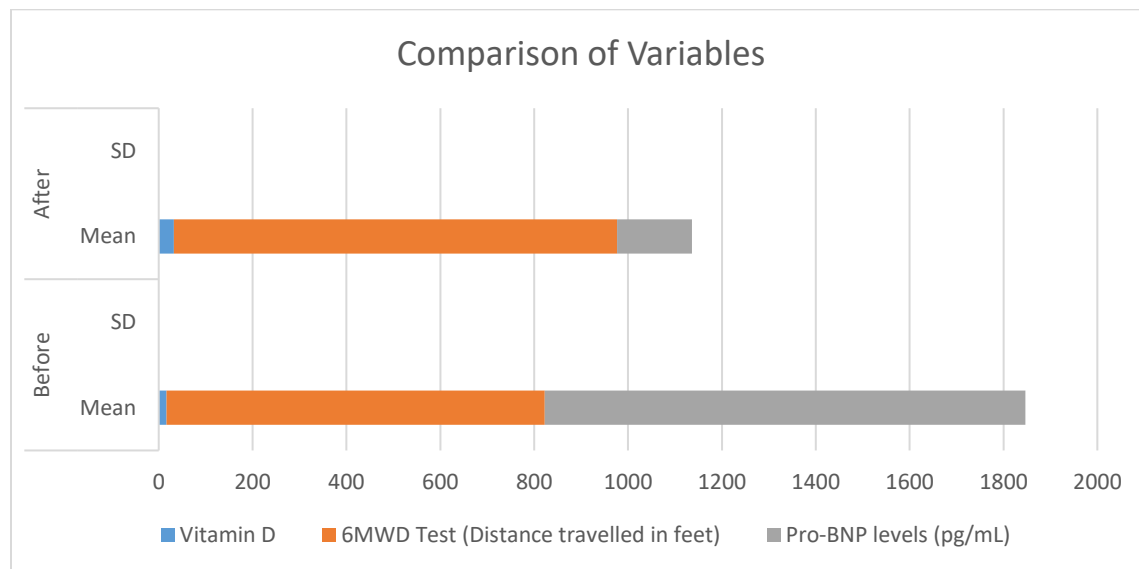
**RESULTS:**

Total 43 patients were the part of this research work. Fourteen were the female patients and 29 were men. Only four patients were available with less than thirty year of age, twenty three patients found in the age group of thirty to fifty year of age & 16 patients had the age of greater than fifty years. Thirty eight patients were uneducated & only 5 patients had education. Twenty eight patients were from non-urban areas while 15 patients were from the city areas. On medical evaluation, majority of the patients were in the Class-2 of NYHA with 65%, the rates of NYHA Class-1, Class-3 & Class-4 were nineteen percent, nine percent & seven percent correspondingly. Baseline average level of Vitamin-D was  $16.59 \pm 13.540$  ng/ml while this level reached to  $31.97 \pm 3.64$  ng/ml after Vitamin-D supplementation displaying an important p amount of greater than 0.0005. The average distance covered by the patient group before treatment was  $806 \pm 380$  feet while it increased to  $945 \pm 393$  feet after supplementation. The average level of pro BNP before treatment was  $1024 \pm 635$  While it promoted to  $159 \pm 80$  after the completion of treatment.

Variable		Value	Percentage
Gender	Number of patients	43	100
	Male	29	67.4
	Female	14	32.6
Age	Mean Age	47.2	-
	>30 Years	4	9.3
	30-50 Years	23	53.5
	>50 Years	16	37.2
Literacy Status	Illiterate	38	88.4
	Literate	5	11.6
Living Area	Urban	15	34.9
	Rural	28	65.1
NYHA Functional Class	Class I	8	18.6
	Class II	28	65.2
	Class III	4	9.3
	Class IV	3	6.9



Variable	Before		After		P-value
	Mean	SD	Mean	SD	
Vitamin D	16.59	±13.54	31.97	±3.64	<0.0005
6MWD Test (Distance travelled in feet)	806	±380	945	±393	0.0080
Pro-BNP levels (pg/mL)	1024	±635	159	±80	<0.0005



### DISCUSSION:

In the last ten years, a marvelous research on assessment of the deficiency of Vitamin-D in people of different areas & its impacts on different body systems carried out. There is very less research work present in this subject about the assessment of the impacts of Vitamin-D supplementation on the functional results of the patients who are the victims of failure of hearts. Ford displayed in his research work therapy of Vitamin D have the ability to save the patients from failure of heart [16]. In this research work, we assessed the impact of Vitamin-D after twelve week management on levels of pro BNP & 6MWD in patients suffering from failure of heart.

We concluded that oral management of D3 for twelve weeks in the patients suffering from failure of heart with deficiency of Vitamin-D promoted their activity level. Past research work showed that the restoration of the amounts of Vitamin-D to normal the normal values promotes the contractility of the muscles & capacity of walking and decreases the fall rate [21]. Amin discovered that Vitamin-D supplementation considerably decreased the seriousness of failure of heart & promoted the physical activity suffering from this disease. In this research work, we got the patients with the deficiency of Vitamin-D & with normal value & discovered that 6MWD enhanced in every patient & pro BNP amounts reduced in every patient of this research work. These result were very much similar to the outcomes of many other research works.

In this research work, walk distance of 6 minutes before research work was  $806 \pm 380$  feet & it enhanced to  $945 \pm 393$  feet after the treatment with a P value of 0.008. The levels of Pro BNP before therapy in this research work were  $1024 \pm 635$  pg/mL & it reduced to  $159 \pm 80$  pg/mL after therapy of complete 12 weeks. Boxer was unable to find any important disparity on 6MWD, uptake of oxygen & strength of muscles in the patients suffering from failure of heart after 6 months' supplementation of Vitamin-D [17]. In the same manner, Witham [18] was also unable to discover any important impact of this vitamin on the life quality. These research works conducted on the aged patients of the populations. The patient's age has the ability to have an impact on the results of Vitamin-D supplementation in those patients of failure of heart.

### CONCLUSION:

The supplementation of the Vitamin-D reduces the seriousness of failure of heart as shown by the decrease in the levels of Pro BNP and an important increase in the distance of walk in six minutes.

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