A study to assess the effectiveness of burger allen exercise on improving peripheral circulation among type 2 Diabetes Mellitus patients in selected hospitals of Nadiad city

Diabetes mellitus is a group of metabolic diseases in which a person has high blood sugar, either because the pancreas does not produce enough insulin, or because cells do not respond to the insulin that is produced. This high blood sugar produces the classical symptoms of polyuria, polydipsia, and polyphagia. Diabetes mellitus type 2 (formerly noninsulin-dependent diabetes mellitus (NIDDM) or adult onset diabetes) is a metabolic disorder that is characterized by high blood glucose in the context of insulin resistant and relative insulin deficiency. This is in contrast to diabetes mellitus type 1, in which there is an absolute insulin deficiency due to destruction of islet cells in the pancreas. Type 2 diabetes makes up about 90% of cases of diabetes with the other 10% due primarily to diabetes mellitus type 1 and gestational diabetes.

The research approach was adopted in the study was Quantitative Research Approach with pre experimental pre-test post-test design. The study was conducted in selected hospital of Nadiad city by use of modified foot assessment scale. The samples were selected by nonprobability purposive sampling technique. 30 samples were selected for the study. Study instrument used by the researcher consisted of two sections i.e. demographic profile and modified foot assessment tool to assess effectiveness of Buerger Allen exercise. Researcher applied paired T-test for comparison of pre and post assessment of effectiveness of Buerger Allen exercise on peripheral circulation among type 2 diabetes mellitus patients in right leg. The study found that the buerger allen exercise is very effective in improving peripheral circulation among type 2 diabetes mellitus patients.

Keywords: buerger allen exercise, peripheral circulation, type 2 diabetes mellitus patients

Introduction

There are three types of diabetes mellitus: Type 1 results from the pancreas fail to produce enough insulin. This form was previously referred to as "insulin dependent diabetes mellitus"(IDDM) or "juvenile diabetes" Type 2 begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses a lack of insulin may also develop. This referred as "insulin dependent diabetes mellitus" (NIDDM) or "adult – onset diabetes". Gestational diabetes is the third main form and occur when pregnant women without a previous history of diabetes develop high blood sugar levels [1].

As of 2015, an estimated 415 million people had diabetes worldwide, with type 2 DM making up about 90% of the cases. This represents 8.3 of the adult population, with equal rates in both women and men. As of 2014, trends suggested the rate would continue to rise. Diabetes at least doubles a person's risk of early death. From 2012 to 2015, approximately 1.5 to 5.0 million deaths each year resulted from diabetes.

People with long standing Diabetes mellitus develop complication of Peripheral Arterial Disease. Peripheral Arterial Disease leads to grave complication like gangrene in the lower limbs. The most common symptom is muscle pain in the lower limbs on exercise. In diabetes, pain perception may be blunted by the presence of peripheral neuropathy.

Peripheral arterial disease (PAD) refers to any disease or disorder of the circulatory system outside of the brain and heart. Peripheral arterial disease (PAD) is narrowing or blockage of arteries with accumulation of fatty tissues and plaque, known as atherosclerosis commonly referred as poor circulation of blood flow to arms and legs. Although the term peripheral arterial disease

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can include any disorder that affects any of the blood vessels, it often is used as a synonym for "Peripheral Vascular Disease". Commonly, the disease affecting the lower limb. Type 2 diabetes mellitus is a major factor causing peripheral vascular resistance which leads to PAD. It is a "silent killer" disease [2,3].

Objective of the Study

To assess the peripheral circulation among type 2 diabetes mellitus before Buerger Allen exercise.

To assess the peripheral circulation among type 2 diabetes mellitus after Buerger Allen exercise.

To find out the effectiveness of buerger allen exercise among type 2 diabetes mellitus patients hypotheses of the study.

H0 – There will be no significant relation between peripheral circulation and buerger allen exercise among type 2 diabetes mellitus.

H1 – There will be a significant relation between peripheral circulation and buerger allen exercise among type 2 diabetes mellitus **(FIGURE 1).**

Materials and Methods

■ Research approach

The research approach adopted for this study will be QUANTITATIVE approach.

■ Research design

One group Pretest-posttest experimental design (Pre experimental research design).

■ Variables under the study

Dependent variable: In this study dependent variables is the peripheral circulation among type 2 Diabetes mellitus patients.

Independent Variable: In this study it refers to burgers allen exercise on improving the peripheral circulation among the type 2 Diabetes mellitus patients.

■ Population

The population for this study to assess the effectiveness of buerger allen exercise on improving peripheral circulation among type 2 Diabetes mellitus patients.

■ Sample / sample size

The sample for the study comprised of 30 patients undergoing type 2 DM, at selected hospitals of Nadiad City.

■ Sampling technique

Non probability purposive sampling technique will be appropriate to select the samples.

Development and Description of the Tool

■ Section –A demographic variable

This consist of 6 items for obtaining

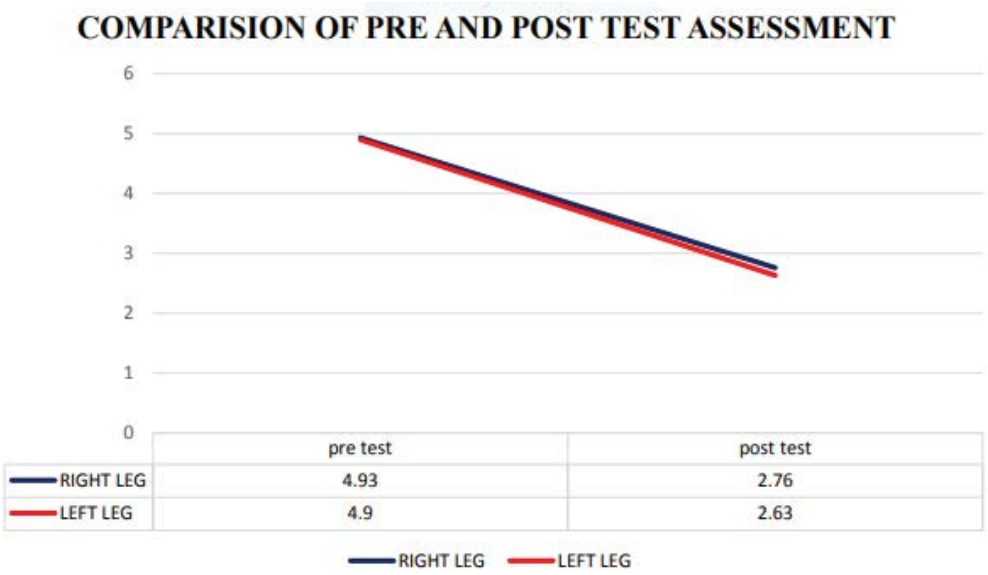

FIGURE 1. Comparison of the pre and post assessment of effectiveness of Buerger Allen exercise.

information about the selected demographic data such as age, gender, duration of type 2 diabetes mellitus, educational status, habit and any other illness [4,5].

■ Section –B modified foot assessment scale

■ Description of sample

TABLE 1 frequency distribution (frequency and percentage) of subjects (type 2 diabetes mellitus patients) in terms of their personal characteristics.

■ Comparison of the pre and post assessment of effectiveness of buerger allen exercise

TABLE 2: Paired T-test for effectiveness of Buerger Allen exercise on peripheral circulation among type 2 diabetes mellitus patients.

It shows i.e. an average score after Buerger Allen exercise on peripheral circulation among type 2 diabetes mellitus patients in right leg and left leg was 2.76 and 2.63 respectively. This indicates that Buerger Allen exercise is effective in improving peripheral circulation among type 2 diabetes mellitus patients **(FIGURE 2).**

Conclusion

The purpose of the present study is to assess the effectiveness of Buerger Allen exercise on improving peripheral circulation among type 2 diabetes mellitus patients in selected hospital of Nadiad city. Pre experimental Pre-test-post-test only design was used for the study, which consisted of 30 samples that were selected on the basis of the non-probability purposive sampling technique. The content validity and reliability of the tool was done, which suggested that the tool was reliable. The pilot study was conducted among 3 samples and the feasibility of the study was established. Based on the objectives, the data analysis was done by calculating the mean, percentage, standard deviation, paired T-test. Results revealed that an average score before Buerger Allen exercise on peripheral circulation among type 2 diabetes mellitus patients in right leg and left leg was 4.93 and 4.9 respectively and an average score after Buerger Allen exercise on peripheral circulation among type 2 diabetes mellitus patients in right leg and left leg was

TABLE 1. Frequency distribution (frequency and percentage) of subjects (type 2 diabetes mellitus patients) in terms of their personal characteristics.

Demographic variable	Frequency and percentage	
	Freq.	%
Age		
50-60 YEARS	8	0.27
60-70 YEARS	15	0.5
70-80 YEARS	7	0.23
GENDER		
MALE FEMALE	18	0.6
	12	0.4
How long are you suffering with dm?		
< 5 YEAR	4	0.13
5-10 YEAR	18	0.6
10-15 YEAR	6	0.2
>15 YEAR	2	0.07
What is your educational status?		
ILLITRATE SECONDARY GRADUATION	1	0.03
>GRADUATION	20	0.67
	7	0.23
	2	0.07
Any Habit You Have?		
ALCOHOL SMOKING TOBACCO NONE	4	0.13
	1	0.03
	2	0.07
	23	0.77
Any Other Illness		
YES NO	6	0.2
	24	0.8

TABLE 2. Paired T-test for effectiveness of Buerger Allen exercise on peripheral circulation among type 2 diabetes mellitus patients.

Administration	Mean	SD	Paired T-test	Table value
Right leg (pre-test)	4.93	1.65	-	-
Right leg(post-test)	2.76	1.57	11.71	2.05
Left leg (pre -test)	4.9	1.77	-	-
Left leg (post -test)	2.63	1.55	10.56	2.05

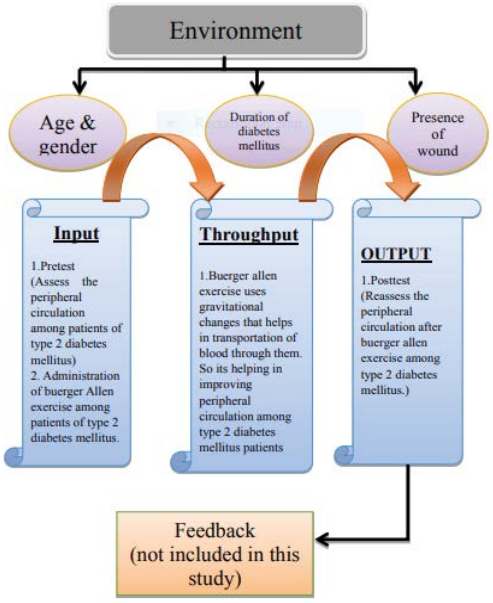

FIGURE 2: General system model of conceptual framework.

2.76 and 2.63 respectively. This indicates that Buerger Allen exercise is effective in improving peripheral circulation among type 2 diabetes mellitus patients.

Recommendations

Keeping in view the findings of the present study, the following recommendation were made.

- A similar study can be replicated in different setting to strengthen the findings.
- The same study could be replicated on large sample size.
- Study can be conducted with Hospital having peripheral vascular disease

References

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