World Journal of Pharmaceutical and Life Sciences
WJPLS
www.wjpls.org
SJIF Impact Factor: 6.129

A COMPARATIVE EVALUATION OF FASTING BLOOD GLUCOSE LEVEL IN A DIABETIC PATIENT AFTER USING VARAM - REFLEXO STUMP FOOTWEAR AS A NATURAL THERAPY- A CLINICAL STUDY.

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Article Received on 20/11/2019 **Article Revised on 10/12/2019** **Article Accepted on 31/12/2019**

ABSTRACT

Diabetes is a metabolic endocrinal disorder with long term complications and also causes problems in circulation of blood, ulcer formation in foot etc., insulin is the important hormone that is concerned with regulation of carbohydrate metabolism and blood sugar level. It is also concerned with metabolism of proteins and fats. there are many methods known to improve insulin secretion and to prevent diabetics. One among them which is gaining popularity now a days is reflexology.[2,8] Foot reflexology has been proven to be effective against diabetes in recent days. Diabetes is caused by variation in insulin production and blood glucose levels.[3,4] This study aims to determine whether the diabetic individual achieve a reduction in blood glucose level in one hour interval time after using VARAM Reflexo-Stump Footwear.

KEYWORDS: Diabetes, Carbohydrate Metabolism, Foot Reflexology, Target Areas, Blood Glucose, Natural therapy.

INTRODUCTION

Reflexology has been in practice for centuries, various researchers have proved that reflexology was been the cure for various disorders.[1,2] Modern reflexology is the ancient form of foot and hand therapy being practiced in china as long ago as 2330 B.C recently it is gaining popularity, it is the very effective and essential for both physical and mental cures.[2] It has influence on nearly all organs of the body. Most of the reflex points (target points) are found in our feet, there are nearly about more than 7000 nerve endings in the human foot.[9] These target points are considered to be index of the human body. Reflexology is very effective for treatment of various endocrinal and metabolic disorders including diabetics.[1,2,9] Diabetic is considered as endemic disease with highest incidence of new patients every year.[3] According to WHO there are about 150 million diabetic patient throughout the world. It is estimated that around 2025 this number will reach more than 300 million.

AIM AND OBJECTIVES

Reducing blood glucose level using reflexology foot wear (VARAM Reflexo-stump footwear) as a Supportive Natural Therapy and to compare fasting blood glucose level in an one hour time interval after using the footwear.

MATERIALS AND METHODS

Patient named Mr. Mani Maran of age forty, a male individual with known history of diabetics and is not under medication till date. Fasting glucose level was accessed before delivering the foot wear, Varam reflexology stump foot wear with required pressure spots were worn for a time period of 1 hour and fasting glucose level was accessed again in test centre (Hitech Diagnostic Centre).

RESULT

Using the Varam Reflexo-stump footwear for a time period of one hour the patient Fasting blood glucose level was reduced with 9 mg/dl (from 231mgdl to 222mg/dl)

Reflexology in Diabetics

Diabetes is a disease that affects ones body ability to produce or use insulin. Insulin is a hormone which is

released to regulate carbohydrate metabolism and in maintains blood glucose level. It also has several other functions including 1) Increase transport and uptake of glucose by the cells, 2) promote peripheral utilization of glucose 3) promotes storage of glucose. 4) inhibition of glycogenolysis and gluconeogenesis etc., Insulin is the only antidiabetic hormone in the body that reduces blood sugar level. Diabetes is of 2 types, **TYPE I**-(cause is mainly of genetics and is unpreventable most often), **TYPE II**-(associated with poor diet, obesity, and other lifestyle decisions).[3,4,5] The effect of diabetes lead to poor blood circulation, occurrence of foot ulcers etc., there are many methods to manage and control diabetes.[5] One of the popular method with tremendous result is foot reflexology. Foot reflexology is a proven effective methodology to manage and control diabetes.[1,2] It results due to variation in insulin production and elevated blood sugar levels, points focussing on endocrine metabolism is found to be beneficial. Application of regular pressure on the target areas (organs responsible for carbohydrate metabolism) will aid in normalizing blood sugar levels.[2] Reflexology for diabetes provides an effective treatment as it aid in controlling blood sugar levels by increasing the insulin secretion. Organs involved in carbhohydrate metabolism are pancreas, small intestine, liver. Applying regular pressure in these targeted area in the foot gives the promising results in controlling diabetes.[6,7]

Procedure: A Clinical study was conducted on a Known diabetic individual named Mr.Manimaran.R aged 40years Male. No history of taking diabetic medication. Fasting blood glucose test was done in HITECH DIAGNOSTIC CENTRE, Chennai between one hour time interval of using the VARAM - reflexo stump foot wear before and after. First Fasting blood glucose sample was taken on **7/12/2019 at 7:46 AM.** After wearing the Varam footwear for one hour time interval, the Second Fasting blood glucose sample was taken on **7/12/2019 at 8:46 AM**. Both the Samples were tested and reported.

Figure 1 & 2: patient wearing the reflex-foot wear for a interval of 1 hour

Description About Varam - Reflexo Stump Footwear

The reflexo- stump footwear consists of about 120 stumps on each side. The stumps are fixed firmly to the underlying leather according to the anatomy of the individuals foot size and shape. The stumps provided acts as a pressure spot for the target areas in the foot, A protective cap is fixed over the stumps to prevent damaging of the foot. Additionally it is recommended to wear a thin nylon socks before wearing the reflexo stump footwear.

Figure 3 & 4: Reflexo-stump foot wear.

Parts of the Varam - Reflexo Stump Footwear
It includes the following

- Stumps made with Polypropylene (which acts as the pressure spot that stimulates the targeted areas).
- Protective caps made with Low density Polypropylene (it aid in protection of foot from damage).
- Velcroe for holding foot to footwear (supplemental aid in holding the foot wear in position).

Uses

- Reduces blood sugar levels (the pressure spots that target the areas of carbohydrate metabolism and aids in insulin secretion).
- Maintains blood sugar levels in daily usage for 1 hour.
- Promotes blood circulation to all organs.

Inference
On analysis of diabetic individual test report,

- First Fasting blood glucose report taken on 7/12/2019 at **7:46 AM** is **231mg/dl.**
- Second Fasting blood glucose report taken on 7/12/2019 at **8:46 AM** is **222mg/dl.**
- Difference between the Fasting blood glucose level is **9 mg/dl** in 1 hour time interval using Varam reflexo stump footwear.

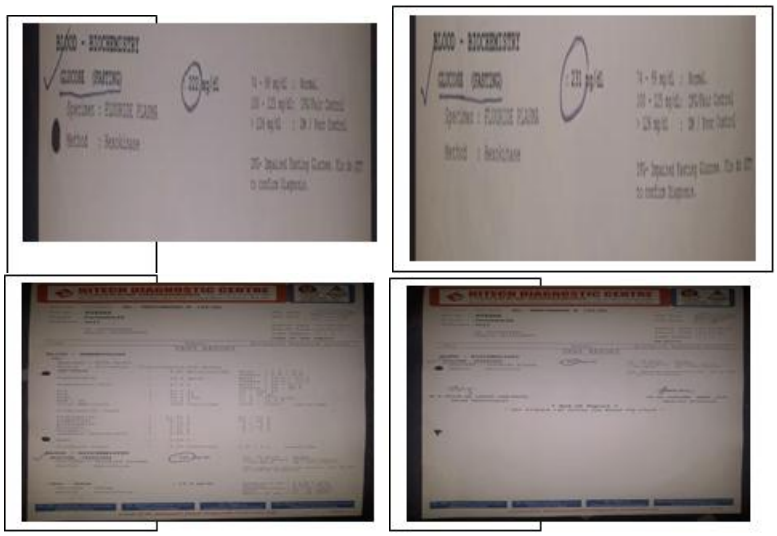

Fig 5 & 6: comparison of fasting blood glucose before and after using VARAM-Reflexo-stump footwear.

DISCUSSION

Our previous research article titled **A Comparative Foot Print Study Among Diabetic and non Diabetic Individual** strongly revealed that cases with diabetes does not achieve required pressure in the target areas. Thus we arrived at the conclusion to devise a object with pressure spots to those targeted areas, that led to the pathway of invention of the device (footwear) named **VARAM Reflexo-Stump Footwear**. Which was delivered to the a diabetic patient and results were correlated above in the inference. From the details furnished above we come to know that by using the VARAM - reflexo stump footwear for 1hour interval reduces the blood sugar level in the diabetic individual.

CONCLUSION

Prolonged hyperglycaemiax in diabetes mellitus causes dysfunction and injury to many tissue and result in complications. Reflexology for diabetes is the most effective form of treatment as it helps to control blood glucose levels. Application of regular pressure in the targeted areas may control the organs of carbohydrate metabolism thus controls the variation in the insulin levels.[3,4,5] Thus to conclude in addition to the diabetic medication prescribed by the physician, a reflexology foot wear as a supportive natural therapy can reduce and maintain blood glucose level and can be helpful for controlling and managing diabetes. It might also prevent the further complications on regular use.

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