

Immediate Effects of Palm Reflexology Therapy to the Pancreatic Area on Random Blood Glucose Level in Patients with Type 2 Diabetes Mellitus: A Pilot Study

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Abstract

Background: Palm Reflexology Therapy (PRT) is a traditional complementary and alternative therapy applied in the treatment of various diseases and used especially in pain management to reduce pain in many health conditions. In the present study, the possible immediate effects of PRT on random blood glucose (RBG) in patients with type 2 diabetes mellitus were investigated.

Methods: Fifteen patients with type 2 diabetes mellitus are included in the study. A GlucoRite Portable glucometer was used to measure the RBG levels. Measurement of RBG levels were obtained 20 minutes before and after PRT.

Results: The mean scores of RBG in study group were 253.93 (SD=103.973) before and 212.47 (SD=89.415) after PRT and their mean pre SBP were 133 (SD=10.657) and post SBP were 128.67 (SD=9.796) and their mean pre DBP were 83.53 (SD=7.160) and post DBP were 81.20 (SD=5.894) and their mean pre PR were 81.33 (SD=5.287) and post PR were 77.80 (SD=4.724) after PRT. The decrease of RBG scores between pre- and post-tests were statistically significant ($P=0.001$) in patients with type 2 diabetes mellitus.

Conclusions: The results of this study suggest that PRT has therapeutic potential to apply in patients with type 2 diabetes mellitus.

Keywords: Type 2 diabetes mellitus; Palm reflexology therapy; Random blood glucose level

Introduction

Diabetes mellitus (DM), widely known as diabetes, is a set of metabolic illnesses marked by hyperglycaemia caused by insulin production, insulin action, or both. The intensity of symptoms is determined by the kind and duration of diabetes mellitus [1]. It is classified as Type 1 DM (β -cell destruction, usually leading to absolute insulin deficiency), Type 2 DM (ranging from predominantly insulin resistance with relative insulin deficiency to predominantly an insulin secretory defect with insulin resistance), other types, and gestational diabetes mellitus, according to the American Diabetes Association (ADA) in 1997 [2].

Every country is seeing an increase in the number of persons with type 2 diabetes, with 80 percent of those affected living in low- and middle-income countries. According to the International Diabetes Federation (IDF), 463 million people worldwide have diabetes in 2020, with India accounting for 77 million of them, making it the world's second most affected country after China. India is home to one in every six diabetics (17%) on the planet [3]. In the management of DM, use of drugs has its own drawbacks, such as drug dependency, drug resistance and adverse effects, if used for a long time. As a result, there has been a rise to the development in non-medical measures to not just managing T2DM but also preventing its consequences in recent years [4].

Reflexology is a type of treatment that involves massaging or applying pressure to certain areas on the feet and hands. These areas are known as 'reflex areas of the hands and feet.' These reflex areas are found on the soles, palms, the top and the sides of the feet and hands respectively. Every part of the hands and feet corresponds to a specific part of the body, according to that the feet and hands as a whole correspond to the whole of the body [5]. By applying pressure

to these reflex areas of the hands and feet, a diagnosis of the body parts that are out of balance can be made, and treatment offered to correct these imbalances and return the body to normal functioning [6]. The practitioner normally prefers reflexology to the soles of the feet because they are more receptive, although the palms of the hands are easy to access in any position, making access to the reflexology points easier. Hands can also be worked on more easily for self-treatment [7].

Previous research has found that using reflexology therapy to correct organ malfunction and restore equilibrium in organ function can enhance cancer patients' quality of life, reduction of pain and anxiety in breast cancer, lung cancer, and premenstrual syndrome patients, as well as seizure frequency reduction and improved quality of life in intractable epilepsy patients. Its efficacy in lowering diabetic neuropathic pain and enhancing quality of life and functional capacity in patients with type 2 diabetes was also demonstrated. However, research evidence on the immediate effects of PRT on the pancreas area of the palms in persons with type 2 diabetes is lacking [8, 9]. The aim of this pilot study was to reinvestigate the possible and beneficial role of the traditional PRT in patients with type 2 DM.

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Materials and Methods

This pilot study was designed to measure the changes in RBG levels. We recruited patients with type 2 diabetes mellitus and will be given PRT at pancreatic area of both palms for the duration of 20 minutes. Data assessments will be performed before and after the intervention. The experimental protocol was in accordance with international ethical standards and approved by the institutional ethics committee. The aims and objectives of the study were explained to the participants before commencement of the study. All participants voluntarily gave a written-informed consent to participate in the study. Source of the subjects were from Government Yoga and Naturopathy Medical College and Hospital, Arumbakkam, Chennai -106. Subjects with end organ damage (gangrene, toes or foot amputation) due to DM and diabetic ketoacidosis, open wound and skin disease on the hands and palms, history of allergies or sensitivity to contact with the palms, pregnancy and lactating women were excluded for this study.

The subjective data were collected by using a Gluco Rite portable glucometer for the assessment of variations in RBG level in patients with type 2 DM. For the assessment, a drop of capillary blood, obtained by pricking a finger with a lancet, will be placed on a disposable test strip connected with the glucometer. Also Blood Pressure and Pulse rate were assessed by using portable digital blood pressure monitor.

The recruited subjects received PRT at the pancreatic area of both palms for the duration of 20 minutes and they had given only one session of reflexology intervention, while they did not received any treatments other than reflexology treatment. First, intervention had given to right palm and then left palm, each with the duration of 10 minutes. Intervention was administered by a naturopathy physician qualified with 5 years of experiences in clinical reflexology treatment. (Figure 1) shows the location of the reflex area of the pancreas on the palm of the left hand, between the 4th and 5th metacarpal bones just above the spot that lies in-between the tips of little and ring finger when we make a fist. The data were analysed using the Statistical Package for Social Sciences 16.0 (SPSS).

Results

Our participants were 15 volunteer patients with type 2 DM, 5 females and 10 males with the age above 18 years. Their mean RBG values were 253.93 (SD=103.973) before and 212.47 (SD=89.415) after PRT and their mean pre SBP were 133 (SD=10.657) and post SBP were 128.67 (SD=9.796) and their mean pre DBP were 83.53 (SD=7.160) and post DBP were 81.20 (SD=5.894) and their mean pre PR were 81.33 (SD=5.287) and post PR were 77.80 (SD=4.724) after PRT.



Figure 1: Palm Reflexology Therapy on pancreatic area of left palm. Source from Department of Acupuncture and Energy Medicine, 2022.

Table 1: The pre and post assessment of PRT.

Parameters	Mean	SD	P value
Pre-SBP	133.00	10.657	0.016
Post-SBP	128.67	9.796	
Pre-DBP	83.53	7.160	0.071
Post-DBP	81.20	5.894	
Pre-PR	81.33	5.287	0.001
Post-PR	77.80	4.724	
Pre RBG	253.93	103.973	0.001
Post-RBG	212.47	89.415	

(SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, PR: Pulse Rate, RBG: Random Blood Glucose)

The decrease in RBG value after PRT was statistically significant (P=0.01) (Table 1).

Discussion

Type 2 DM is a major public health problem in the world and a main cause for lots of complications such as diabetic neuropathy, diabetic nephropathy, diabetic retinopathy etc.

In this study, there was a decrease in RBG level after PRT was noted. It can be stated that PRT can be accepted as a complementary therapy in clinical practice for patients with type 2 DM. The results supported a previous study related the effects of reflex therapy on type 2 DM [6, 7].

However the mechanism of action of PRT is still not clear, but there are some different theories about physiological and regulating effects on various diseases. Reflexology energy medicine has beneficial effects to decrease pain, psychological stress and symptoms of fatigue. It is stated that the mechanisms by which palm reflexology affect body functions are mainly due to the balance between sympathetic and parasympathetic divisions of the autonomic nervous system, and also, stimulation of the release of mediators that act on local and distant sites to regulate physiological processes [10].

Conclusion

The present study suggests that a single session of reflexology intervention focused on the immediate effect of reflexology on the pancreatic area of both palms on random blood glucose levels in patients with type 2 diabetes mellitus. The study results showed a significant reduction in RBG and PR in the study group. The results of this study suggest that PRT has therapeutic potential to apply in patients with type 2 diabetes mellitus.

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Author Contribution

S.S. participated in research design; S.S. and Y.R.A. participated

in the writing of the paper; S.S., N. M. and N. M. participated in the performance of the research; Y.R.A. participated in data analysis.

Conflict of Interest

The authors declare no conflicts of interest.

Informed consent

Informed consent was obtained from all individuals included in this study.

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