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A experimental study to assess the effectiveness of ginger tea in type 2 diabetes among adults (Above 40yrs) in selected area in Tirunelveli (Kadayanallur)

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Abstract
Diabetes mellitus is an ICEBERG disease, which is the most common condition in all over the countries. The present study was aim to evaluate the effectiveness of ginger tea among type 2 diabetes mellitus patients in selected area of Tirunelveli. A quantitative approach with quasi experimental research design was adopted for the present study. In samples 60 type 2 diabetes mellitus patient among which one group (30) is experimental group and other 30 is control group by using probability purposive sampling technique. An experimental group received a 2gm/day of ginger root for 21 days. A self- structured questionnaire method was used to collect both the demographic data and knowledge about the type 2 diabetes mellitus. After intervention the experimental group value of post test 't' test value is 9.187 was found to be statistically significant at p greater than 0.001. Hence the findings of present study concluded that was significantly improvement in the post test level of blood glucose in the experimental group which clearly infers that ginger tea on blood glucose level was found to be effective in reducing the level of blood glucose among type 2 diabetes patients.

Keywords: ginger, type 2 diabetes mellitus, adults above 40yrs

Introduction

Diabetes is one of the four major types of non communicable disease. Polyuric diseases have been reported for over 3500 years. The name "diabetes" comes from the Greek word for a syphon; the sweet taste of diabetic urine was acknowledged at the beginning of the first millennium, but the adjective "mellitus" (honeyed) was added by ROLLO in the late 18th century [1].

The sugar in diabetic urine was identified as glucose by chevreul in 1815. In the 1840s. Laguesse suggested that the pancreatic "islets" described by Langerhans in 1869, produced an internal secretion that regulated glucose metabolism [2].

In 2019, approximately 463 million adults (20 – 79 yrs) were living with diabetes; by 2045 this will rise to 700million (According to the International Diabetic Federation). The proportion of people with type 2 diabetes is increasing in most countries. In low and middle living income countries have 79% of adult with diabetes [3]. The global prevalence of impaired glucose tolerated is estimated to be 7.5% (374 million) in 2019 and projected to reach 8.0% (454 million) by 2030 and 8.6% (548 million) by 2045 [4].

According to the world health organization: diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose which leads over time to serious damage to the heart, blood vessels, eye, kidneys and nerves [5].

The term diabetes mellitus describes "a metabolic disorder of multiple etiology characterized by chronic hyperglycemia with disturbances of carbohydrates, fat, and protein metabolism resulting from defects in insulin secretion, insulin action or both. The effects of diabetes mellitus include long term damage, dysfunction and failure of various organs. Diabetes mellitus may present with the symptoms of polyuria, thirst, blurring of vision and weight loss [6].

Ginger is the part of the Zingiberaceae family, which is typically grows in warmer areas of Asia – such as china, India, and Japan. It is also grows in West Africa, South America and the Middle East [7, 8]. This spice is not only used for medicine but also for cooking that increase a aroma in food. It has been used for thousands of years for the treatment of numerous aliments, such as colds, nausea, arthritis, migraines and hypertension [9].

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Several authors have reviewed the medicinal, chemical and pharmacological properties of ginger. Ginger is recognized by the U.S. Food and Drug Administered (FDA) as a food addicted that is "generally recognized as safe" [10, 11]

In globally rhizome of zingiber officinale is widely used for treatment and medicinally purposes due to its ethno medicinal and nutritious values [12, 13]. Phytochemical components of Z. officinale is contain a number of potentially bioactive substances, mainly gingerols and their related dehydration products, the shogaols, as well as volatile oils including sesquiterpenes, such as beta bisabolene, mainly geranial, and neral. It has shown that the main constituents of ginger are Gingerol and Shogaol, Zingerone and Paradol. It was reported that 6-gingerol and 6 shogaol are the major gingerol and shogaol present in the rhizome [14].

Mechanism that contribute to the formation of free radicals in diabetes could embody metabolic stress ensuing from changes in energy metabolism, inflammatory mediators and impaired inhibitors defense mechanism [15, 16]. This study also concluded that ginger lowers diabetes with no significant side effects. In those studies, the patient took ginger tea daily for 3-4 weeks and the analysis showed that ginger caused significant decreases in levels of high glucose level. The results gotten by the ginger supplements were even good as those drug achieved by drugs [17].

Methods and Material

The quantitative approach with quasi experimental research design was used in this study. The population of the study included a all adult above 40yr who were lived in Tirunelveli (Kadayanallur). The under study patients were diagnosed with type 2 diabetes mellitus by an clinical check up with FBS using a glucometer and met criteria of the study. These criteria included diabetic clients who were in the age group of above 40 yrs, client with FBS more than 126mg/dl; excluded are type 2 DM clients who had any other co morbidities like hypertension, cardio vascular diseases, etc, [18, 19] who were on insulin treatment, gestational DM, clients on anticoagulation and anti hypertensives. The samples size is 60; 30 for experimental group; another 30 is for control group in this study. Experimental group clients consume a 2mg/day ginger root in the form of ginger tea. Instead of tea or coffee client should drink a 300ml of ginger tea each day for 21 days. All clients were permitted to consume their usual medications according to their physicians.

Results and Discussion
Description of the demographic variables

Table 1: Comparison of pre-test and post-test level of blood glucose among patients with diabetes above 40yrs in the experimental and control group. N = 30

Group	Blood Glucose	Mean	S.D	Paired 't' test Value
Experimental	Pretest	165.70	19.54	t = 22.073
	Post Test	127.67	14.55	p = 0.0001 S***
Control	Pretest	167.73	18.40	t = 1.929
	Post Test	166.97	18.37	p = 0.064 N.S

***$p<0.001$, S – Significant, N.S – Not Significant

The pretest mean score of blood glucose in the experimental group was 165.70 with standard deviation 19.54 and the post test mean score of was 127.67 with standard deviation 14.55. The calculated paired 't' test value of t = 22.073 was found to be statistically significant at $p<0.001$ level.

It was found that there was significant improvement in the level of blood glucose which clearly infers that ginger tea on blood glucose level was found to be effective in reducing the level of blood glucose among patients with diabetes above 40 yrs in the experimental group [20, 21].

Conclusion

The results of the present study revealed that there was significant improvement in the post test level of blood glucose in the experimental group which clearly infers that ginger tea on blood glucose level was found to be effective in reducing the level of level of blood glucose among patients with diabetes aged above 40 yrs in the experimental grouthan the control group [22, 23].

Acknowledgement

Conflict of Interest
Author declare no conflict of interest

Finding Support
None

References

1. Wills T. Pharmaceutice Rationalis, sive *et al*. Oxford: Sheldonian Theatre 1674, 2(1).
2. Dobson M. Experiments and observations on the urine in diabetes. Med ObsInq 1776;5:298-316.
3. Rollo J. An Account of two cases of the diabetes mellitus, with remarks as they arose during the progress of the cure. London: C Dilly, 1797 [A 2nd edition with more cases was published in 1798 and a 3rd edition in 1806.
4. Chevreul ME. Note sure lesucre du diabetes. Ann Chim (Paris) 1815;95:319-320.
5. WHO Expert Committee on Diabetes Mellitus. Second Report. Geneva: WHO, Technical Report series 1980, 646.
6. Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Report of the expert committee on the diagnosis and classification of diabetes mellitus. Diabetes Care 1997;20:1183-1197.

7. Viuda-Marto M, Ruiz-Navajas Y *et al*. Spices as functional foods. Critical Reviews in food science and nutrition National Diabetes data group, classification and diagnosis of diabetes mellitus and other categories of glucose intolerance. Diabetes 1979;28:1039-57.

8. World Health Organization (WHO). Diabetes Mellitus: Report of a Study Group. Technical Report Series 727. Geneva: WHO 1985.

9. Fatai Oladunni Balogun *et al*., Ginger Cultivation and its Antimicrobial and Pharmacological Potential edited by Haiping Wang

10. Mohamed A. Esawi, Physical Method for stimulation of plant and mushroom development.

11. Rani MP, Padmakumari *et al*. Inhibitory potential of ginger extracts against enzymes linked to type 2 DM, inflammation and induced oxidative stress. Int. J Food. Sci. Nutr 2011;62:106-110.

12. Salim KS. Hypoglycemic property of ginger and green tea and their possible mechanism in diabetes melliteus 2014.

13. Al-azhary DB. Enhances antioxitant activity and attenuates atherogenesis in diabetic fed 2011.

14. American Diabetes Association. Diagnosis and classification of diabetes mellitus. Diabetes Care 2010;33(1):S62-S69.

15. Viuda-Martos M, Ruiz Navajas Y *et al*. A Spices as functional foods. Critical Reviews in food science and nutrition 2010, 51(1).

16. Concannon P, Rich SS, Nepom GT. Genetics of type 1A diabetes. N Engl J Med 2009;360:1646-1654.

17. McCance DR, Hanson RL, Charles MA, Jacobsson LT, Pettitt DJ, Bennett PH *et al*. Comparison of tests for glycated haemoglobin and fasting and two hour plasma glucose concentrations as diagnostic methods for diabetes. Br Med J 1997;308:1323-1328.

18. World Health Organization (WHO). Report of a WHO Consultation. Definition, diagnosis and classification of diabetes mellitus and its complications. 1. Diagnosis and classification of diabetes mellitus. WHO/NCD/NCS/99.2. Geneva: WHO 1999.

19. Kooti W, Farokhipour M, Asadzadeh Z, Ashtray: Larky D *et al*., The role of medicinal plants in the treatment of diabetes: A Systematic review 2016, 8(1).

20. Lindstedt I. Ginger and diabetes: A mini-review, Archives of General Internal Medicines 2018;2(2):29-33.

21. Ginger. NCCIH herbs at a glance, US NCCIH. September Retrieved 2 February 2016-2019.