



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY HEALTH SCIENCES

ISSN: 2394 9406

CASE STUDY OF A TYPE 2 DIABETES MELLITUS PATIENT WITH ALLOWING A BANANA IN DIET

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ABSTRACT

Diabetes is chronic but manageable disease which needs a perfect diet schedule with lifestyle to keep it under control. There are very much restrictions of diet for the diabetic patients. They commonly avoid all sweet taste including fruits. According to *Ayurveda*, there are multiple merits of fruits over diabetic patient including delaying/avoiding diabetic neuropathy/ nephropathy/ retinopathy. Study of fruits and its relationship or effect on diabetic patient will be a milestone if some of fruits passed for diabetic patient.

Keywords: Nutritional value of Banana, glycemic index, case study, materials and methods, Result tables, conclusion.

INTRODUCTION:

While explaining qualities of banana, *Bhavprokashnighantu (AmradiPhalvarga)*¹ stated that it is *Mehagna* i.e. it is useful in *Prameha* as other qualities of banana i.e. *Vrushya* (vigour), *Bruham* (energetic), *Netryauseful* in eye disorder) etc. which are useful to counteract complications of *Prameha*

While explaining the *Hetu* or causative factors of *Prameha* no *Acharyas* has explained that eating fruits is the cause of *Prameha*

As *Acharya Charak (ChikitsaSthan)*² said There is no mention of fruits as cause of *Prameha* specifically but only taste i.e. *sweet/jaggery* is responsible cause.

Likewise *Acharya*

*Vagbhata (Adhyaya 10)*³ while explaining causes of *Prameha* doesn't emphasize on certain fruit that is harmful for *Prameha*.

We decided to study effect of Banana fruit on diabetic patients. We checked Glucose Tolerance Test of certain pre-diabetic patients with giving 90gms of Banana Pulp instead of standard 90gm of glucose.

The fruit Banana is selected because of its common availability and merits of nutritious value over *Prameha* patients.

Nutritional value of banana (per 100gm)⁴

Energy=89kcal- 45%
Carbohydrate=22.84gm-18%
Protein =1.09gm- 2%
Total fat =0.33gm=1%
Cholesterol=0mg=0%
Diet fiber=2.60g=7%
Vitamins =70%

Minerals

Diabetes is a chronic but manageable disease in which body struggles to control the levels of blood sugar. As per ADA (American Diabetic Association) guidelines any fruit is fine to eat for a person with diabetes so long as that person is not allergic to a particular fruit

A meta-analysis published in 2014 in the British medical journal found higher fruit intake was significantly associated with a lower risk of type 2 DM

Glycemia Index⁵

GI is a rating of foods on a scale from 1 to 100 the score indicates how quickly the food item may raise blood sugar levels High GI food are absorbed faster than medium or low GI foods

Glycemia load (gl) = GL take in to account the GI of a food plus the number of Carbohydrate in a serving.

Banana is having 7% of dietary fibers

ADA noted that eating fibers can be helping lower BSL higher fiber can slow the absorption of sugar.

GI on banana is low i.e. 51

& fiber contain in average size banana is 3gm.

CASE STUDY:-

So as to find out relation of change in glucose level in diabetic mellitus patient we will present a case study.

A female patient age:-62yr is observed for study she is a diagnosed as a diabetes mellitus with hypertension 1yr back. Patient's weight is 55kg.

with no other disease history.

She is a housewife occasionally working on farm.

She had her menopause at the age of 44yrs.

She is having 2 children and now independent.

No past surgical history

No H/o-asthma any major illness

No H/o - hospitalization for major illness

Appetite- normal

Sleep- normal

Non-vegetarian

She is on metformin 500mg o.d.

& amlodep 5mg =o.d. since 1yr

Materials and Methods:-

She has her FBSL=157, PPSBL=228

HBA1C=6.3 1DAY before starting study

On the day we administered 90gm pulp for GTT instead of sugar
 We repeated RBS on 10th 30th 45th 60th 75th day
 Then HBAC on 90th day
 For the whole period of 90 days she has been advised to consume 1 banana (approx 90 GM) daily with No changes in regular diet& medication & the results are:

Patient 1	HbA _{1c}	HbA _{1c}
	Before study 6.3	After study 6.5

Table no.1

GTT with banana	FBSL	1HR BSL	2HR BSL	3HR BSL
PATIENT 1	77	114	160	206

Table no.2

RBS	10TH DAY	30TH DAY	45TH DAY	60TH DAY	75TH DAY
PATIENT 1	209	224	198	180	202

Table no.3

DISCUSSION:-

Madhumeha is a widely evidential disease since ancient age till today and evidence is increasing day by day with lips and bounce with their complications and complexes. Diabetes mellitus is similar to Madhumeha which is a sub-type of Vataja Prameha. The above study is an observation of BSL in a single patient after adding a fruit i.e. Banana regularly in diet of type II DM patient to find out whether this fruit can be *pathyakar* for this single patient. As banana contains approximately 22gms of carbohydrates and daily need of carbohydrates of an average person is approx. 150gms it might be possible to observed no rise in BSL for that experimental patient.

The above study is going to carry out in no of patient as there is no significant rise in glucose level of type II DM patient. The statistical data will be collected and published.

CONCLUSION:-

- 1) There is no significant rise in blood glucose level even regular eating 1 banana
- 2) We can predict that banana is good to for eat type 2 DM patient no 1

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