

## A NOTE FROM A STUDY ON THE PREVALENCE OF DIABETES MELLITUS IN A SAMPLE OF VEGETARIANS

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*Key words:* vegetarianism, diabetes mellitus

### SUMMARY

*Vegetarianism is an old classic eating behavior that leads to lessening of several health risk factors. Vegetarian diet is reported to improve control of blood glucose concentration, to lower insulin requirement and to aid in weight control in diabetic patients. However, there is no evidence for the prevalence of diabetes mellitus to be significantly lower in vegetarians than in non-vegetarians. In this study, the prevalence of diabetes mellitus was compared between the groups of vegetarians and of well matched control subjects. According to the results obtained, the prevalence of diabetes in vegetarians and non-vegetarians was 2.5% (1/40) and 20% (8/40), respectively, yielding a significantly higher rate in the latter ( $p < 0.005$ ).*

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### INTRODUCTION

In Asia, vegetarianism is an old classic eating behavior. The diet for vegans is rich in fiber (1). It contains very little sodium and no cholesterol (1). It appears that the adoption of vegan diet exemplified by the living food leads to lessening of several health risk factors for cardiovascular diseases and cancer (1,2). Diets rich in fiber and complex carbohydrate, and restricted in fat improve control of blood glucose concentration, lower insulin requirement and aid in weight control in diabetic patients (3).

Vegetarian meal plan is supposed to be beneficial for type 2 diabetics (4). Vegetarianism seems to be a way for lowering the risks for the development of complications in diabetic patients (5,6). The prevalence rates of diabetes and hypertension were lower among long-term vegetarians compared to non-vegetarians (6). However, there is no evidence that the prevalence of diabetes mellitus is significantly lower in vegetarians than in non-vegetarians. In this study, the prevalence of diabetes mellitus was compared between the groups of vegetarians and of well matched control subjects.

## MATERIALS AND METHODS

A total of 40 male monks who are strict vegetarians according to the religious regulations of Mahayana Sect (strict vegetarians) were included in the study. The diets of these subjects contain no meat or other animal products such as animal oils, cheese and eggs. Upon asking for their informed consent, fasting fluoride blood samples were collected from all subjects for blood glucose determination by the glucose oxidase method. For comparison, another 40 male monks who are not vegetarians according to the religious regulations of Hinayana Sect were included as control subjects matched for age range and sex.

On statistical analysis, data were processed using the SPSS 7.0 for Windows software. The prevalence of diabetes mellitus in each group was determined and compared using the proportional t-test. Statistical significance was set at  $p < 0.05$ .

## RESULTS

### *Characteristics of study subjects*

Study group consisted of 40 male subjects, mean age ( $\pm$ SD)  $38.2 \pm 4.1$  years and mean body mass index (BMI)  $22.5 \pm 2.9$  kg/m<sup>2</sup>. Control group included 40 male subjects, mean age  $38.3 \pm 3.1$  years and mean BMI  $22.2 \pm 2.6$  kg/m<sup>2</sup>. The distribution of age and BMI was normal in both study and control groups of subjects (Kolmogorov-Smirnov test,  $p > 0.05$ ). There was no statistically significant between group difference in age and BMI (independent sample t-test,  $p > 0.05$ ).

### *Prevalence of diabetes*

The prevalence of diabetes in the vegetarian and non-vegetarian group was 2.5% (1/40) and 20% (8/40), respectively, yielding a significantly higher rate in the latter ( $p < 0.005$ ).

## DISCUSSION

Diet control is a cornerstone of diabetes management. Vegetarian diet is a choice for the control of diabetes mellitus (7). Indeed, there is evidence that vegan diets as well as exercise training tend to decrease the viscosity of both whole blood and plasma; reductions in hematocrit and fibrinogen may contribute to this effect (8). There are various reasons to postulate that vegan diet can reduce the risk of other major complications of diabetes such as retinopathy, nephropathy and macrovascular disease, apart from its tendency to improve glycemic control in type 2 patients (8).

The results of the present study showed a significantly lower prevalence of diabetes mellitus among the subjects on vegetarian diet. It should be noted that, although there are some reports showing a high prevalence of diabetes mellitus among vegetarians, there is no study with matched controls. This study included two groups of male monks with similar lifestyle consistent with the practice of Buddhism. The subjects from the groups were age matched and additional studies revealed that there was no significant between group difference in BMI. The two groups differed only in their eating habits, since the study group used strict vegetarian diet, whereas control group did not practice vegetarianism.

Study results showed a lower prevalence of diabetes mellitus in the vegetarian group. This might imply usefulness of vegetarianism as an alternative in managing diabetes. However, additional studies of this complementary method are needed prior to generalization.

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