Summary and Conclusion

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The present study was undertaken to learn the percentage prevalence of diabetes mellitus among transport employees, develop and promote low glycemic recipes and impart diet and therapeutic life style counselling to the diabetics.

The salient findings of the research are presented in the following.

Phase I

1. Out of 9204 employees, 463 were diabetics. Among these diabetics 86 percent were Type II diabetics and 14 percent were Type I diabetics.
2. All the diabetics in all the four work categories were literates. The level of education ranged from primary school to post graduation.
3. Technical staff earned less than Rs.8000/month, while administrative staff earned more than Rs.16,000/month. Eighty two percent and 68 percent of drivers and conductors earned a monthly income of Rs.8,000 to 12,000 respectively.
4. Eighty one percent of the diabetics were non-vegetarians, while only 19 percent were vegetarians.
5. Food intake revealed that cereals were consumed adequately by all the diabetics. Green leafy vegetable consumption was inadequate by all categories of employees. Administrative staff consumed excess of roots and tubers and other vegetables, while it was inadequate for the other categories. Milk and milk products consumption was more by all the categories owing to frequent consumption of tea and coffee and subsequently, sugar consumption was also excess by 50 to 80 percent. A deficit was exhibited in fruits consumption, while there was an excess consumption of fleshy foods and fats and oils by all categories.

6. With regard to nutrient intake energy consumption was adequate in the case of running crews, while 24 percent excess was observed in the case of administrative staff and a deficit of 11 percent was observed in technical staff. Carbohydrate consumption was adequate and protein consumption was satisfactory in all the categories except technical staff who showed a deficit of ten percent. A very high fat intake was observed in all the categories, with 90 percent excess in administrative staff. Fibre intake showed a deficit of 10 to 25 percent by all categories. Intake of calcium was excess by 75 percent because of frequent consumption of beverages that contain milk and milk products. Other micronutrients namely beta carotene, thiamine and riboflavin intake was greater than recommended dietary allowances.

7. Life style pattern of the diabetics revealed that 58 percent to 78 percent consumed alcohol. Among the alcoholics majority consumed only 250ml of alcohol once a week.

8. More than 70 percent of the diabetics were smokers.

9. Sixty nine percent of administrative staff performed regular exercise, while among other groups only 50 percent exercised regularly.

10. Sixty five percent to 82 percent of the different categories expressed that they were under stress and tension, because of the nature of their occupation.

11. In 48 to 63 percent of the diabetics, there was a family history of diabetes mellitus, while 37 to 47 percent of diabetics in different categories, did not have a family history of diabetes mellitus.

12. Eighty one percent diabetics had problems relating to heart and hypertension.

13. Fifty percent of diabetics in each category had normal body mass index. While grade I or grade II obesity prevailed among the rest. Fifty four to 68 percent of the diabetics in various categories showed high waist hip ratio.

14. Only 10 to 17 percent of conductors, technical staff and administrative staff maintained fasting blood glucose level within normal range, while none of the drivers showed normal fasting blood glucose level. None had post prandial blood glucose level in the normal range. Fifty to 60 percent of all the diabetics had a very high level of post prandial blood level of 191 to 250mg/dl.

15. None of the drivers, 10 percent each of conductors and technical staff and three percent of administrative staff registered normal glycosylated haemoglobin values. Drivers had very high levels of total cholesterol, triglyceride and LDL cholesterol and were rated as high risk group followed by administrative staff, technical staff and conductors.

Phase II

1. The nutrient content of standard recipes compared with legume powder incorporated variations brought forth that there was no difference in the energy content of 100 gram portions.

2. In all sprouted legume powder incorporated recipes protein content was two to three times greater than that of standard recipes and there was a prominent hike of 1.6 to 2.6g hike in fibre content.

3. Standard recipes had produced very high blood glucose levels compared to legume incorporated recipes. Sprouted horse gram powder incorporated adai, dosai, kozukattai and pittu had shown only a minimum increase in blood glucose level. Horse gram was more

effective in lowering blood glucose levels followed by green gram, peas and Bengal gram.

4. In non-diabetic subjects also the post prandial blood glucose values of the standard recipes were higher than that of the legume incorporated recipes. In non-diabetic subjects green gram was found to exert beneficial effect than horse gram. The standard recipes had registered very high glycemic index ranging from 90-99 for different recipes. When sprouted legume powders were incorporated the glycemic index was very much lowered which were between 63 to 86.
5. Sprouted peas powder incorporation had shown the most favourable response compared to other legumes.

Phase III

1. The knowledge evaluated after counselling showed significant improvement with an average score of 85 percent.
2. Diet and therapeutic life style counselling produced favourable results in terms of knowledge and improvement in health. Sprouted legume powders produced low increase in blood glucose levels and showed low glycemic indices.
3. The results brought out the fact that transport workers need proper counselling to avert the incidence of diabetes mellitus and to manage the disease. Incorporation of sprouted legume powders has great health giving properties that would benefit the diabetics and weight conscious sections of the population.

Recommendations

- Studies could be undertaken to find out the prevalence of all diet related disorders among transport workers.

- Transport corporations should provide inbuilt continuous therapeutic diet and life style counselling to all the transport workers.

- Large scale studies should be undertaken to develop and standardize recipes with low glycemic index and they should be popularised among the population.