

DIABETES PREVENTION AND CONTROL IN DEVELOPING COUNTRIES

Ram P.

Diabetes prevention and control poses several problems in the developing countries. Many of these poorer nations are still burdened with the problems of infective, communicable and malnutrition related disorders and now have to face the increasing incidence of non-communicable diseases such as hypertension and diabetes. Several of these countries have diabetes prevalence rates three to four times as high as those of the developed countries. Other difficulties in control measures include inadequate health planning and administration, manpower shortage, limited resources and poor community awareness and absence of diabetes centres.

The desirability of establishing special centres in the developing countries to promote and integrate care, learning and research in diabetes has been emphasised repeatedly^{1,2,3}. Aspects of diabetes prevention and control are discussed with particular reference to activities in Fiji.

Usually the increasing problem of diseases such as diabetes is brought to medical attention from hospital based data. Although these data may be based and often incomplete, they do give an indication of the problem in the community.

Before any control and preventive measures against diabetes are implemented it is essential to assess the magnitude of the problem in the community. This would include prevalence

(number of people having the disease), incidence (number of new cases over a period of time), morbidity and mortality data as well as the preventable or reversible risk factors for diabetes in the community.

The information thus obtained needs to be analysed and disseminated to the community in a comprehensible form; utilising all available means of communication such as lectures, seminars, medical and lay press, radio and television.

Diabetes is a prevalent disorder and needs the involvement of the whole community for successful control measures. The community needs to be made aware of the existing problem and be sensitized to ensure participation, support and the availability of resources.

Like other chronic diseases, diabetes, is an expensive disease both to an individual in terms of loss of income from absentism and sickness, transport costs, and medications and to the community from the increasing and excessive burden on health care and rehabilitative facilities. Adequate funding is rarely available.

In planning control measures it is important to consider the available resources, community attitude and behaviour and the existing health care delivery system. The programme needs to be practical, realistic, well planned, cost effective, community-wide and prevention

Director Dr. Margaret Cornelium, Medical Coordinator, National Diabetes Centre.

orientated and integrated into the primary health care system.

Health education is the most important, most effective and the least costly way of fighting all chronic diseases including diabetes⁶⁻⁶. For these efforts to be successful it needs to be aimed at the total community i.e. health care professionals, the health authorities, the politicians, the patients and the public. The educational strategies need to be directed to preventive aspects of the disease at all levels of the health care delivery, and to all grades of health care workers and support staff. Adequate level and periodic updating of knowledge among the primary health care workers is of major importance as the success of preventive health measures depends on knowledgeable, enthusiastic and motivated health workers.

Evaluation is an essential part of all intervention programmes to assess the effectiveness of the programmes and where necessary appropriate changes made.

National Diabetes Centre

We have been developing appropriate training courses for health workers, doctors, medical assistants, nurses and dietitians at the National Diabetes Centre. This Centre was established in 1984 to control diabetes in the country by promoting and integrating diabetes care. The Centre has broad aims and objectives and in particular it aims to educate the health care professionals, the diabetes and their relatives and the public, to be a resource centre and to provide guidance on, coordinate and conduct diabetes related research.

The Centre itself is located in a large renovated three bedroom house adjacent to the

Colonial War Memorial Hospital and in close vicinity of other National Hospitals in Suva, the Fiji School of Medicine and the Fiji School of Nursing. The Centre has a large reception room, four offices, a lecture room to accommodate 15 people, a library, a kitchen and an urine testing area as well as a small area for teaching home blood glucose monitoring. The library has 50 books on diabetes, nutrition and related topics. The major international diabetes journals and periodicals are on regular subscription. Basic teaching aids include a blackboard, a slide projector, an overhead projector, tapes on diabetes, a video and a photocopying machine. The Centre is staffed with a part-time director of consultant grade and well trained medical coordinator, two nurse educators, a dietitian and a research/surveillance officer.

With rapid expansion of the work of the Centre, two room extension was completed in December, 1986, to provide space for diabetes research and pediatry services.

The work of the Centre is supported by the World Health Organization and the Fiji National Diabetes Foundation, a national body comprising leading members of the community. The Foundation assists in fund raising and in the administration of the Centre.

National Training Courses

The National Diabetes Centre has been conducting regular training courses for doctors, medical assistants, nurses and dietitians. The aims of these five day intensive courses are for the health workers to acquire knowledge on diabetes and thus be able to detect the condition, provide information on all aspects of the disease, motivate and educate diabetics, be able

to advise the community on healthy life style and to be a resource person.

The course contents include all aspects of diabetes with major emphasis on socio-economic consequences of diabetes, and practical and public health aspects of diabetes (Table I). Detailed instructions are given in monitoring control with urine/blood tests, insulin injections, sterilization of syringes and other precautions. Considerable time is devoted to the care, of the skin, feet and teeth.

Table I

**PROGRAMME FOR NATIONAL
TRAINING COURSE ON DIABETES
FOR HEALTH PROFESSIONALS**

Monday

Official opening—*Guest Speaker*

Pre Course Test
Epidemiology of diabetes
Diabetes in Fiji
Detection and diagnosis
Physiology of food digestion
Introduction of diet
Skin problems in diabetes

Tuesday

Socio-economic consequences of diabetes
Diabetic complications :
vascular diseases
retinopathy, neuropathy
nephropathy, diabetic coma
diabetic sepsis and foot care
Patient education
Visit to Rehabilitation Unit and Diabetic Sepsis Ward

Wednesday

Management of diabetes
Diet-food exchange system
Exercise
Insulin
Oral hypoglycaemic agents
Hypoglycaemia
Diabetes in children

Thursday

Prevention of diabetes
Insulin Injections
Psychological problems in diabetes
Monitoring control-urine/blood testing
Diabetes education

Friday

Diabetes in pregnancy
Social aspects of diabetes
General discussion
Evaluation and post course test

Presentation of certificates—*Guest Speaker*

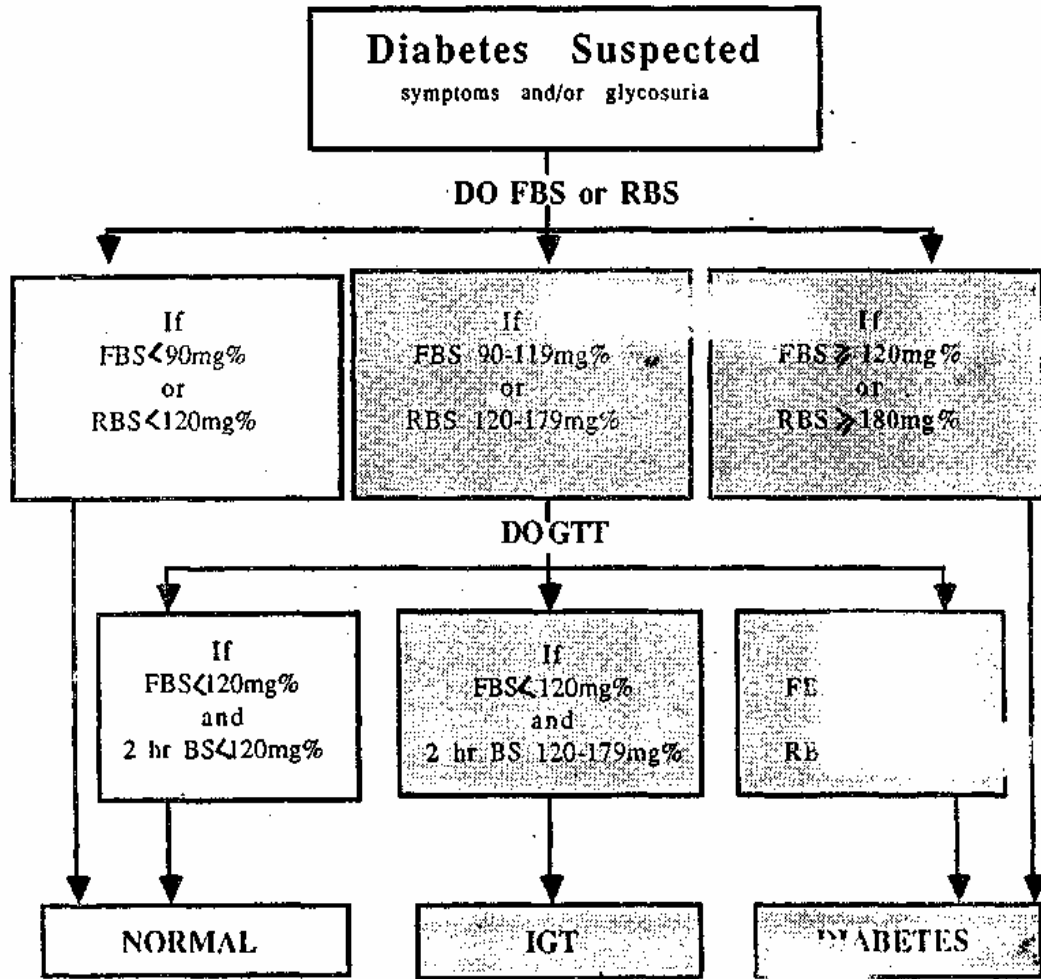
The participants also visit the diabetic sepsis ward, the Rehabilitation Unit and participated in other post-graduate activities at the Fiji School of Medicine.

With relatively small number of participants (10 per course) it allows for frequent informal discussions. Pre and Post course assessments are routine. The participants are provided with copies of lectures and other relevant materials such as Diagnostic Guidelines (Table II).

The other important feature of these courses is the community participation. The official opening and closing ceremony and presentation of certificates is carried out by leading members of the community.

Table II

Practical Approach to Diagnosis of Diabetes



ADVICE :

- *maintain normal weight
- *if obese, reduce weight
- *do regular exercise

ADVICE :

- *maintain normal weight
- *if obese, reduce weight
- *do regular exercise
- *decrease fat intake
- *avoid drugs that raise blood sugar
- *assess blood sugar periodically (perhaps 6-12 month intervals)

TREAT :

- *education
- *diet
- *exercise
- *medication

FBS : Fasting Blood Sugar (mg%)
 RBS : Random Blood Sugar (mg%)
 GTT : Glucose Tolerance Test
 IGT : Impaired Glucose Tolerance

The National Diabetes Centre has conducted 18 national training courses in diabetes since November 1984. At present there are one hundred and seventy-six trained health workers in various health divisions in the country (Table III).

Table III
HEALTH WORKERS TRAINED IN
DIABETES IN FIJI

Health Divisions	HEALTH WORKERS				
	Doctors	Medical Assistants	Nurses	Dietitians	Total
Central	8	6	37	9	60
Eastern	3	6	15	1	25
Northern	6	9	21	3	39
Western	12	10	24	6	52
	29	31	97	19	176

Patients and Community Education

Diabetes is a serious chronic disease that is not easily conquered and the treatment is complex, demanding and lifelong. The progressive nature of the disease causing chronic complications, adherence to diet, regular medication, monitoring control and associated psychosocial and economic stresses add to the difficulties.

The major part of the ongoing treatment has to be provided at home by the patients themselves and their families. Hence they become active members of the health care team. There is probably no other disease in which so much is expected of the patients and their families.

At an individual level diabetes education is the most important and essential aspect of the treatment. The aim of education is to motivate and educate the diabetic so that he acquires adequate knowledge and necessary skills, gains confidence in the management of his condition and thus becomes responsible for his own health. Self care is essential for survival of the diabetic.

The educational process is not easy. It is gradual, continuous time-consuming and requires considerable patience and perseverance and encouragement on the part of the diabetes educators. Education needs to be individualised and adapted to meet the diabetics requirements. Difficulties in education may be encountered because of lack of motivation, intellectual ability, age, emotional barriers, physically handicapped patient's concept of his illness his beliefs and economic factors. Language difficulties can be overcome by providing education in patient's own vernacular language.

Primary health care is of great importance to diabetics and their families, since most of the care is obtained at this level³. The care is provided by medical officers, medical assistants, nurses, dietitians, diabetes educators and other allied health workers during home visits, at nursing stations, health centres and outpatient clinics. It is important to realise that the surroundings in which diabetes education is offered should be conducive to learning. The availability of educational materials in the form of posters, pamphlets, booklets, newsletter, tapes, slides and other audiovisual aids is essential.

The initial information needs to be simple, concise and easily understood and should

include limited general information necessary for immediate management of the condition. Ideally all diabetics should have a well planned indepth education on all aspects of diabetes. This can be done either as an inpatient, where facilities are available or more conveniently especially in developing countries on an out-patient basis. In addition periodic refresher courses are an essential part of continuous education. This offers an opportunity for updates, re-enforcement on important aspects of diabetes and continued assessment of diabetes education.

At the National Diabetes Centre we provide initial education which includes limited general information i. e. what is diabetes, how it affects health, management, monitoring and acute complications. All patients are instructed on diet, exercise and monitoring i.e. urine testing and recording.

Insulin-dependent diabetics are usually admitted to the adjacent CWM Hospital for stabilization. Their initial education including insulin injections and care of the syringes is provided as inpatient by the centre staff.

Some weeks after the initial diagnosis patients undergo a programmed indepth education about diabetes. This takes a total of six to eight hours spread over a period of several weeks with each session lasting 33-45 minutes. Education is carried out by diabetes educators, di`etitian and assisted by a medical officer. Patient's family and relatives are encouraged to attend these sessions. Evaluation at the completion of the course is routine. The major topics covered during the course include :—

what is diabetes, signs and symptoms, management of diabetes, diet and food

exchange system, advise on alcohol and smoking, exercise, diabetes tablets, insulin, sterilization and care of needles and syringes, monitoring control, blood testing, general health care, social aspects.

To get the message to the diabetics, their relatives and the community, an extensive use is made of mass media in the country; the two daily newspapers The Fiji Times and the Fiji Sun and the two radio stations; Radio Fiji and FM 96. Television, a very potent and effective educational medium, when introduced, would undoubtedly be of of great value in this respect.

Printed materials, posters, pamphlets and booklets on diabetes are another important means. The need to be simple, concise, clear and easy to understand. Pictorial information is particularly valuable especially for those who are illiterate or semi-literate.

We have printed six pamphlets on diabetes in three languages English, Fijian and Hindi. These are on—

Common questions on diabetes, How do I know I have diabetes,

Learning to live with diabetes, Lead a normal life with diabetes,

A diabetic diet is a healthy diet and Foot care in diabetes. In addition we have produced six large colour posters on—

What is diabetes, Symptoms of diabetes, Management of diabetes,

Food and diabetes, Monitoring control of diabetes and Complications of diabetes.

A 20 page booklet on Insulin and Diabetes, a guide to insulin injections is valuable to

patients. The Centre has also produced a 40 page booklet "FOOD and DIABETES". This well illustrated and simple booklet gives most of the information on diet regarding local foods in the control of diabetes. It also contains a weight for height table relevant for the local population.

Regular use is made of other local publications; the monthly Science Journal, bi-monthly Fiji Medical Journal and quarterly Food and Nutrition Newsletter to increase public and professional education about diabetes.

Last year we started printing of a regular (thrice yearly) eight page diabetes newsletter; Diabetes Awareness in an attempt to increase public awareness and to educate the community. With 10,000 copies printed, there is a wide circulation. The newsletter is sent to all hospitals, health centres, nursing stations; schools and teaching institutions, libraries, women's clubs, service organizations, health workers, community leaders and members of the community directly involved in diabetes activities.

Further activities include preparation of colour posters on the Prevention of Diabetes and Foot care and a booklet on DIABETES for Health Professionals.

References

1. World Health Organization Expert Committee on Diabetes Mellitus. Second Report., Technical Report Series 646, WHO, Geneva 1980.
2. Ram P, Special problems of diabetes control in developing countries : Experiences from Fiji, In; Tuomilehto J. et al. eds, Diabetes Mellitus, Primary health care, prevention and control, I.D.F. Publication 1982: 22-27.
3. Diabetes Mellitus, Report of a WHO Study Group, Technical Report Series 727, WHO, Geneva 1985.
4. Zimmet P, Serjeantson S and Kirk R, The Tsuji Memorial Lecture: Prevention and Control of Type II Diabetes-Dream or Reality, In : Baba S, et al, eds., Diabetes Mellitus, Present Knowledge on Aetiology, Complications and Treatment, Sydney, Academic Press, 1984; 219-235.
5. Grabauskas V and Tuomilehto J, Integration of diabetes control with that of other non-communicable diseases, In: Tuomilehto J et. al, eds., Diabetes Mellitus; Primary health care, prevention and control, I.D.F. Publication 1982: 51-6.