

Towards a cost-effective delivery of diabetes care in Sri Lanka

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Diabetes mellitus, whilst reaching epidemic proportions in many parts of the world including Sri Lanka, affects in addition to the urban sector, an increasing number of rural communities (1). The rise in the prevalence of diabetes would correspondingly lead to an increase in number of patients seeking treatment in hospitals (2). Sri Lanka being a lower middle income developing country lacks adequate resources, both financial and human, to manage this increased load of diabetic patients. However, the author is of the opinion that cost-effective utilization of existing resources would enable us to face this challenge. The primary healthcare system in Sri Lanka has been a true success story where we have reached a high standard of care despite limited resources. Similarly, in the case of diabetes cost-effective mechanisms should be identified and implemented in screening, education and the delivery of diabetes care and its prevention.

Of the three methods of screening available for diabetes, namely universal, opportunistic and high risk screening, the latter two might be the most practicable in Sri Lanka. In a recent study we carried out in a Teaching Hospital, nearly 22% of patients presenting to a medical ward for illnesses other than diabetes appeared to have raised blood glucose values which however needed reconfirmation (personal communication). Screening for diabetes in selected groups in the community could also be considered a method of opportunistic screening. Compared to an oral glucose tolerance test, the urine dipstick test performed after a standard glucose meal is simple and may be acceptable to patients and might be cost-effective (3). However this should not be advocated for routine use, but reserved as an alternative only in circumstances where resources are not available to carry out blood glucose testing. In a study conducted in India on 63,305 subjects participating in an opportunistic screening programme, a random capillary blood glucose value of 110mg/dl at screening was recommended to refer for definitive testing (4). In another study conducted in Sri Lanka the yield of undiagnosed diabetes in high risk subjects based on a family history was 13% (5). Polycystic ovary syndrome (PCOS) is considered to be a pre-diabetic state and should be sought for particularly among adolescent girls so that appropriate early preventive strategies could be adopted (6). In this respect, in a study conducted in an urban school in Sri Lanka, 13% of adolescent girls were found to have acanthosis nigricans, a possible marker of PCOS (7).

Diabetes education is of paramount importance in its management. There is a severe dearth of trained diabetes educators in Sri Lanka. With the view of overcoming this problem, the Kandy Branch of the Diabetes Association of Sri Lanka, pioneered a project where volunteers from a locality were trained to impart diabetes education to the community. The results achieved were remarkable. Among those patients who present to the hospital in the absence of formally trained educators, the patients depend on busy medical officers for education. In a study conducted in a Diabetic Clinic in Sri Lanka it was found that written instructions on diabetes are equally effective as the more accepted and standard method of providing verbal instructions (8). Other categories that could be used for diabetic education includes the mass media, volunteers, members of non-governmental organizations and enabled patients.

Diabetic care in Sri Lanka is delivered at government and private hospitals and by the general practitioners. In a study conducted at a diabetic clinic at a teaching hospital, we found that the quality of care was less than what was expected due to lack of resources and overcrowding (9). Since this has reached the status of becoming a specialized subject, more diabetic clinics should be opened at least in district general and teaching hospitals as well as in the major private sector hospitals. In a recently opened 'diabetic clinic' in the private sector despite limited resources, a significant fall in the blood glucose values and a high patient satisfaction score was observed (personal communication).

In a country such as ours where certain socio-culturally related misconceptions exist among patients that can interfere with diabetic care, it is pertinent to address these issues. One such issue is in relation to the diet; when what is really required is not the reduction of carbohydrate intake but the lowering of total energy intake and reduction of fat consumption. Another issue that affects proper glycaemic control in our patients is the reluctance to accept insulin treatment, although there is convincing evidence that insulin remains the most potent agent to lower the blood glucose and to achieve targets. Early initiation of insulin therapy, followed by oral hypoglycaemic agents later would be beneficial in preventing complications (10). However this is not widely practiced even in the West at present. In the event that

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this strategy becomes standard recommended practice in the future, it might prove to be a cost effective strategy in the control of diabetes. Hence, medical personnel should strive to convince their patients of the need to institute insulin therapy when there is an indication; thereby contributing to more cost effective diabetes care by preventing long term complications.

Although traditional anti-diabetic agents improve hyperglycaemia, this is achieved at a cost, which may also entail hypoglycaemia, increased body weight, exacerbation of dyslipidaemia and hypertension which are components of the metabolic syndrome; thereby potentially increasing the cardiovascular risk. To overcome this some support an early and aggressive polypharmacy addressing the underlying pathophysiology, with medical nutrition therapy, exercise, metformin and other oral hypoglycaemic agents and insulin if glycaemic goal is not achieved within 3 months (11).

Another area where sufficient attention is not paid in delivery of cost effective diabetes care in Sri Lanka is in relation to diabetes care in pregnancy. In a study reported previously, it was shown that only 25% of pregnant mothers attending an antenatal clinic have been screened for diabetes (12). Pregnancy outcome among women with diabetes is significantly poorer than in the background population (13). In this situation too, suitable strategies need implementation for screening for diabetes during pregnancy and for the long term management of such patients.

Cost effective diabetes care consists of preventing as well as treating complications. The complication which accounts for the highest morbidity and mortality in diabetes is cardiovascular disease. Several studies have shown the association of glucometabolic perturbations with higher cardiovascular morbidity and mortality especially in women, and the importance of controlling post-prandial glycaemia to lower the cardiovascular mortality (14). In patients with diabetes and heart failure metformin appears to be associated with more favorable clinical outcomes (15). In the clinical experience of the author, metformin may be an option when patients are unable to use insulin or other oral agents for glycaemic control in chronic stable heart failure. Periodontitis is another condition which is common in Sri Lankans. It is more prevalent and more severe in those with diabetes (16). Periodontal treatment could lead to a significant reduction in HbA1c level (17). Recent work has also demonstrated an important relationship between diabetes and depression. One in eight individuals with diabetes has major depression, and another one fifth may have less severe but clinically significant depressive symptoms. Diabetes patients with comorbid depression can have worse self care and treatment adherence, glycaemic control,

increase morbidity and mortality (18). The symptoms of diabetes and depression often intervene in what can be termed “diapression”. Approaching depression in an integrated manner may be a novel approach to improve patient care. Even though there is no data on the prevalence of depression in Sri Lanka, the author is of the opinion that this could be an important factor contributing to inadequate control of diabetes among our patients. Diabetic nephropathy is a common morbid complication of diabetes and is a leading cause of chronic renal disease. Approximately 40% of patients with diabetes develop chronic renal disease (19). An even mild degree of albuminuria such as microalbuminuria is associated with a marked increased risk of cardiovascular disease, death and higher health care costs (20). In relation to painful diabetic nephropathy the most effective agent to lessen the pain and improve quality of life is pregablin (21.)

Primary prevention of diabetes would be highly cost-effective in a developing country such as ours where the cost of treating the illness and its complications would be very high. All the land mark diabetes prevention trials such as the Chinese Da Qing study (22), the Finnish Diabetes Prevention Study (23) and the Diabetes Prevention Programme in USA (24) have shown that diabetes could be prevented by as much as by 58% with lifestyle modification and use of drugs such as metformin. The lifestyle measures advocated include physical exercise, prevention of obesity, reduced alcohol consumption, stopping smoking and reduction of mental stress. In a study reported from India, educational intervention was successful in reducing some of the obesity parameters and dietary patterns in individuals with prediabetes and diabetes (25).

All these measures stated by the author based on personal experience as well as based on evidence presented should enable us to deliver a more cost-effective diabetes care thereby leading to substantial reduction of morbidity and mortality due to diabetes in a resource limited setting like in Sri Lanka.

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