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Diabetes care in Nigeria: Time for a paradigm shift

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Summary

Diabetes mellitus is becoming a major public health problem in Africa and its burden is expected to increase. Persons with diabetes mellitus require continuing medical care and self-management education to prevent complications. In both developed and some resource-poor countries, the management of persons with diabetes has been undergoing rapid changes in order to improve standards of care, through restructuring of clinics or through the establishment of diabetes centres with a multidisciplinary team approach to care. There has been a progressive increase in the prevalence of diabetes mellitus in Nigeria and the burden is expected to increase even further. In view of the looming burden of diabetes in Nigeria, there is an urgent need to examine existing healthcare structures, revise the delivery process of healthcare programmes for persons with diabetes and effectively implement a process that facilitates accessibility to such programmes. Well-structured community-based care, appropriate to the local situation and resources, would provide for this, making it more accessible and realistic to the needs of persons with diabetes living in urban and rural areas of Nigeria. Various models have been adopted for the delivery of diabetes care. This article aims to highlight some of these various models of diabetes care. It concludes with a proposed model for the care of persons with diabetes mellitus in Nigeria.

Keywords: *Diabetes mellitus, burden, care, Nigeria, model, restructure*

Résumé

Le diabète mellitus est devenu un problème majeur de santé en Afrique et ses conséquences sont supposées augmenter. Les individus ayant cette maladie doivent avoir des soins de santé intense et une éducation du ménagement propre pour prévenir les complications. Dans les pays developés et sous developés le ménagement des personnes avec le diabète a subit des changements rapide afin d'améliorer les standards des soins en restructurant les cliniques ou en établissant les centres muni d'une équipe multidisciplinaire. Il y a une augmentation progressive de la prévalence du diabète au Nigeria. En vue d'une prévalence croissante au Nigeria. Il y a ce besoin de re-examiner les structures des soins existant, réviser le procès de distribution et une implémentation effective des programmes accessibles. Des soins communautaire bien structurés, appropriés, bases sur la situation local et ses ressources pourrons améliorer ces besoins des ces patients en zones urbaines or rurales au Nigeria. Plusieurs modèles ont été adoptes pour apporter les soins aux patients diabétique. Cette étude apporte un modèle de ménagement pour les soins des personnes ayant le diabète mellitus au Nigéria

Introduction

Diabetes mellitus is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels [1]. It is the leading cause of blindness [2], non-traumatic amputations [3], and end-stage renal disease in adults in the western world [4]. It is also a major risk factor for cardiovascular disease [5].

Diabetes mellitus is already a major public health problem in Africa and its burden is expected to increase [6]. The World Health Organization (WHO) and International Diabetes Federation (IDF) in 2004 warned that the number of people with diabetes in Africa is expected to more than double over the next 25 years [6]. In 2000, there were 7.5 million cases of diabetes in the continent. By 2030, this figure is expected to rise to around 18.2 million. It has been estimated that more than 80% of people with diabetes in Africa remain undiagnosed [6]. Type 2 diabetes mellitus (type 2 DM) is expected to account for the majority of these cases. It is the predominant type of diabetes seen in both developed and developing countries, accounting for up to 90% of all patients with diabetes [1].

There has been a progressive increase in the reported prevalence of diabetes mellitus amongst Nigerians. In 1963, Kinnear reported the prevalence of diabetes mellitus amongst a hospital population in Ibadan as 0.39% [7] and he considered diabetes to be an uncommon disease amongst Nigerians. Johnson obtained a prevalence rate of 0.3% to 0.5% amongst Lagos metropolis residents in 1969 [8], while Osuntokun *et al* in 1971, reported a prevalence

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rate of 0.43% in a hospital-based study done in Ibadan [9]. By 1988, the prevalence of diabetes amongst Lagos residents was reported as 1.7% [10], while prevalence rates of 2.4% and 1.5% respectively were reported amongst persons living in urban and rural communities around Ilorin in 1989 [11].

In the report of a national survey conducted on non-communicable diseases in Nigeria, published in 1992, the national prevalence rate for diabetes mellitus was reported as 2.8% [12]. The crude prevalence for diabetes mellitus in males and females below the age of 45 years was 1.6% and 1.9% respectively; with a 3 fold increase after the age of 45 years to 5.4% and 5.6% in males and females respectively. Urban communities had a higher overall prevalence of diabetes (3.3%) when compared with rural communities (2.6%). The burden of diabetes in Nigeria is expected to increase even further.

Persons with diabetes mellitus require continuing medical care and self-management education to prevent acute complications and reduce the risk of long-term complications. The United Kingdom Prospective Diabetes Study (UKPDS) showed that intensive control of blood glucose and tight control of blood pressure reduced the risk of microvascular complications amongst patients with type 2 DM [13]. Consequently, it should be the aim of health decision makers and health professionals to promote an optimal organization and delivery of care for patients with diabetes, as far as existing resources allow. In both developed and some resource-poor countries, the management of persons with diabetes has been undergoing rapid changes in order to improve standards of care through restructuring of clinics or the establishment of diabetes centers with a multidisciplinary team approach to care [14]. Various models have been adopted by these countries for the delivery of diabetes care.

This article aims to highlight some of these changes, as well as various models of diabetes care. It concludes with a proposed model for the care of persons with diabetes mellitus, in Nigeria.

Our experiences and the challenges to the delivery of diabetes care in Nigeria

Methods

We retrieved and reviewed the register of patients attending the diabetes clinic of the University College Hospital between January 2002 and December 2004.

Results

As many as 6-8 new referrals were received at each clinic, and this was in addition to patients attending the follow up clinic. The number of patients attended to on a follow up basis per clinic, ranged from 50-65. In 2002, 1793 persons with diabetes mellitus were attended to in our clinic. The number rose steeply to 2708 and 2915 in the year 2003 and 2004 respectively. This may however be a slight under-estimation of the actual figures as some patients may see other specialists in relation to complications or personal preferences.

Discussion

The ambiance of our diabetes clinic (run at the University College Hospital (UCH), Ibadan, Nigeria) is an overpopulated and understaffed clinic. Usually the clinic is run once a week by 2 consultant physicians, 1 senior registrar and 2 registrars. Two public health nurses act as health educators. A dietician also renders service during the clinic hours. There are no diabetes specialist nurses, chiropodists or orthotists. The clinic is often overwhelmed by the number of patients seeking care, which does not allow provision of optimal care. Often times because of the large clinical load, insufficient time is allotted to patients with complications and they are often overshadowed by the number of people with uncomplicated disease. This same scenario probably exists in other health care institutions in Nigeria.

Limited access to healthcare, low awareness amongst the public and health-care providers, inadequate epidemiological studies, insufficient resources for national diabetes programmes, and the dearth of high-quality diabetes education and training of healthcare-personnel are major challenges faced by Nigeria and other African countries [6,15]. This has resulted in unsatisfactory care in terms of prevention and management of complications in patients with diabetes.

Though the number of patients seen in our diabetes clinic has risen significantly, there has been no corresponding increase in the number and spectrum of health care providers to man the clinic adequately. The number of patients attending the clinic is expected to rise further and this will have further negative implications on the standards of care, if the existing structure of care is not revised.

Models for the delivery of diabetes care

1) *Shared care model*

In the United Kingdom (UK), due to the ever-increasing burden of type 2 diabetes, it was logical that the general practitioner in the UK assumed an increasing role in the provision of care for these patients. It was no longer possible or desirable for all patients to be treated routinely within secondary care by diabetes specialists. Shared care schemes for persons with diabetes are now in operation in the UK [16]. It involves the "joint participation of hospital consultants and general practitioners in a planned delivery of care for patients with a chronic condition, informed by an enhanced information exchange above and beyond the routine discharge and referral notices" [16]. Studies have confirmed that shared care schemes are effective in the UK and can be as effective as hospital-based care [17].

For shared care to work efficiently, the following have been considered as essential [16]:

- the identification of objectives for care
- guidelines for management of diabetes locally agreed along national guidelines, taking into consideration local resources
- well developed outreach services from hospital: highly trained diabetes nurse specialists who advise on practical problems
- computerized prompting system for calling and recalling patients,
- shared care patients' record system carried by patients when attending clinics in both hospital and community
- an effective educational system for patients, their carers, and all healthcare professionals, and
- an integral audit system between hospital and GP, allowing discussions to improve the service in a cost effective way.

In the light of all the above, it would appear that many barriers exist in respect of the efficient implementation of a shared care scheme as practiced in the UK, for the management of patients with diabetes in Nigeria. Other models thought to be more appropriate to the needs of a resource-poor and developing country like Nigeria are now discussed.

(2) *Training and introduction of diabetes specialist nurses.*

Developed countries have been using diabetes specialist nurses or diabetes educators to provide diabetes education, information and support as well as treatment changes for patients with diabetes [18]. The introduction of diabetes care by specially trained nurses who followed detailed protocols and algorithms under the supervision of a diabetologist has been associated with improved diabetes outcomes [19]. There is ample evidence that properly trained nurses have a role to play in healthcare delivery systems for diabetes in Africa, where doctors are few and overburdened with many aspects of patient care [14,20]. They have already taken root in South Africa and Ghana. A training programme for diabetes specialist nurses has been in existence at the Diabetes centre in Kumasi, Ghana in the last few years. Diabetes specialist nurse-led education for patients and carers has contributed to major improvements in diabetes management and outcome in Ghana and they are considered great assets [14,20]. Between 1991 and 1998, diabetes related admissions declined from 16% to 4%, and mortality from diabetes declined from 4% to 0.5% over the same period [14]. Diabetes specialist nurses are reported to have reduced the workload of the doctors by handling education, teaching of diet and management of stable patients. Nurses in Nigeria if given adequate education and training can also play a significant role in diabetes care and complement the work of the doctors. This should ideally be implemented at all levels of health care.

(3) *The institution of non-communicable disease (NCD) clinics at primary and secondary healthcare levels.*

This involves the setting up of NCD clinics, separate from the general primary health clinic, with the aim of delivering care to persons with diabetes close to people's homes at the primary care level [15]. An appropriate primary level clinic will be nurse-led with back up as available from doctors. It is advised that clear protocols for diagnosis, risk factor assessment, and management should be developed and adopted. Nurses and doctors in primary health care (PHC) and their colleagues in referral institutions would need to be appropriately trained in the clinic's functioning and protocol. This would help to ensure cooperation and standardization of care for people with diabetes at different levels of health care. Some basic principles have been recommended [15].

- The programme should be appropriate to the local situation and resources
- Effective educational system for all health care professionals should be in place
- Well supported delegation of human and physical resources is a priority in order to improve access to health care and sustain uptake of long-term treatment

(4) *Development of village health workers* (VHWs).

The development and implementation of a regional training programme for potential village health workers (VHWs) has been proposed as a model for delivering accessible and realistic care to the rural poor in villages [21]. The objective is to educate the village health worker to manage safely a patient with type 2 diabetes and to have the depth of knowledge necessary to teach effectively a patient to take care of self. A comprehensive training course, with a structured plan of education is needed. This should be constructed in a manner, which is understandable, applicable and learnable, given by professionals actively working in the field or a team of mobile professionals employed to educate VHWs on site [21]. It is anticipated that the VHW would potentially be sensitive to local environmental issues and possess an inherent understanding of their belief system with respect to traditional health practices. Supervision and updating of the training of the VHW would help to ensure that the standards are maintained. Contact with a secondary health care facility is thought to be essential in order that VHWs can refer to a higher level of care where necessary.

The Ghana diabetes care model

An increasing population of persons with diabetes and the realization that their care was not optimal, led to the eventual setting up of a diabetes centre, with diabetes specialist nurse educator support in Kumasi, Ghana in 1993 [14,20]. The service was set up in conjunction with the

Manchester Diabetes Center (UK) and the Tropical Health and Education Trust (UK). Through this diabetes centre, structured diabetes care by a team approach, nurse-led education for patients and carers has led to major improvements in diabetes management and outcome.

A national diabetes care and education programme has been developed in Ghana through international collaboration of medical schools, industry and government health care institutions [22]. The programme also involved in-service training for nurses and doctors in teaching hospitals, district hospitals, polyclinics, and other staff connected with the care of persons with diabetes, so that they can also, in turn, train others. In three years all regional and about 63% of sub-regional/district health facilities had trained diabetes healthcare teams, run diabetes services and had diabetes registers at these institutions [22]. The programme has now been extended to primary health care level. Guidelines for diabetes care and education have also been produced. The Ghana diabetes care model, a 'top-down' approach, initially involving two diabetes centres, is recommended to other developing countries, which intend to incorporate diabetes care and education into their health care system.

A proposed model for Nigeria

In view of the increasing burden of diabetes in Nigeria, there is now an urgent need to examine existing healthcare structures, revise the delivery process of healthcare programmes for persons with diabetes and effectively implement a process that facilitates accessibility to such programmes. Well-structured community-based care, appropriate to the local situation and resources, would provide for this [21], making it more accessible and realistic to the needs of persons with diabetes living in urban and rural areas of Nigeria. It is advocated that this should involve adequate assessment and care performed by appropriately trained personnel, not just in big city hospitals, but also in rural hospitals and primary healthcare clinics in cities and villages [15,23]. A good example of this exists in South Africa, where diabetes care has been devolved as much as possible from the central hospital to primary healthcare (PHC) clinics with referral to secondary care when necessary [24]. There is a need for this in Nigeria.

The lack of trained health professionals and lack of programmes to train health professional has been cited by many member organizations of the International Diabetes Federation (IDF) as the most crucial issue impeding the delivery of high-quality diabetes education and care [25]. We advocate for the institution of measures to achieve a major increase in awareness and knowledge about diabetes, its complications and preventions amongst Nigerian health professionals, especially at primary and secondary healthcare levels. This is fundamental to the provision of reasonable care to persons with diabetes, relevant to local needs and resources, and would make the shared care model, feasible in Nigeria some day. The introduction of VHWs in Nigeria would be a realistic means for the provision of care to the rural poor, and in line with this, we advocate for the development of a training programme for VHWs. The proposals made above can be developed and initiated as a pilot programme in one state in Nigeria and subsequently extended throughout the country if found to be beneficial and cost-effective. This can only be achieved successfully through a collaborative approach by health decision makers, non-governmental organizations and healthcare professionals in Nigeria.

The existing structure of diabetes care in many hospitals in Nigeria cannot deliver the quality of care, which is required. Due to the increasing burden of diabetes in Nigeria, there is now a pressing need for the establishment of dedicated diabetes centres throughout the country. These are solely dedicated to the care of persons with diabetes so as to offer improvements in the standard of care and diabetes related outcomes. South Africa and Ghana are two countries with this model of care operating successfully. The first diabetes centre in Nigeria has recently been established in Ilaro, Ogun state and this is a laudable development.

Efforts currently being made to develop guidelines for diabetes management locally, as well as ongoing projects to disseminate knowledge about diabetes and its economic impact should be encouraged and expedited. Nurses in Nigeria if given adequate education and training can also play a significant role in diabetes care and population-based community health promoting activities and programmes targeted towards the management of type 2 DM.

Conclusion

The care of patients with diabetes in Nigeria must be taken much more seriously than we have done thus far. The restructuring of diabetes care in Nigeria is long overdue and is fundamental to achieving the objective of more effective management of patients with diabetes. The establishment of community-based care is crucial. If these measures are not put in place now, the increase in diabetes and its associated complications could have huge public health implications on the nation. We can and must learn from the experience of other African countries like Ghana and South Africa. Health decision makers, non-governmental organizations and healthcare professionals in Nigeria must work together in the fight to reduce the impact of diabetes.

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