Knowledge, awareness, and impact of diabetes among adolescents in Uyo, Nigeria

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Abstract

This study was carried out in order to determine the knowledge, awareness, and impact of diabetes among adolescents in Uyo, Nigeria. This was a cross-sectional, descriptive study. A structured questionnaire on the various aspects of diabetes – such as cause, symptoms, and complications – was administered to 200 students followed by a health awareness talk on diabetes. Four weeks later, the same questionnaire was re-administered to find out if the talk had made an impact. Forty percent of the students could tell the cause of diabetes before the health talk and this increased to 49% after it. Only 31% of them agreed that weight reduction is useful in diabetes management but this increased to 48% after the health talk. Twenty eight percent agreed that diabetes is a chronic disease and this increased to 70%. Excessive passage of urine was the most frequent symptom of diabetes identified by the group, while 24 subjects could identify more than one symptom of diabetes before the health awareness talk. The kidney was the most common organ identified as being affected, with the nerves being the least. Type 2 diabetes was identified as being the most common form of diabetes by 40% of the respondents. Before the awareness talk 31% correctly identified that urine glucose cannot be used to diagnose diabetes and this increased to only 35% after the talk. A greater number of respondents (73%) agreed that type 2 diabetes can be seen in the young. Knowledge and awareness of certain aspects of diabetes among adolescents is poor; however, adequate health education had a positive impact on their knowledge and awareness. More health education is advocated to increase awareness and knowledge on all aspects of diabetes.

Introduction

Diabetes is a disease that is assuming an epidemic proportion worldwide, with the incidence estimated to reach about 220 million by the year 2010.[1] Overall it is estimated that 8% to 10% of people over 50 years old worldwide have diabetes and 40% will die from kidney disease and 60% from cardiovascular causes.[2] In Nigeria, the national prevalence is put at about 2.2% and this continues to be on the increase.[3] Many factors are responsible for this increase. With increasing urbanisation, many people are adopting unhealthy Western lifestyles with reduced physical activity, sedentary lifestyles, and excessive intake of calories. This contributes to obesity which is a risk factor for the development of diabetes. We are also seeing an increasing incidence of type 2 diabetes in the young as a result of obesity.[4] It is important to know about the awareness level of this condition, as knowledge is a critical component of behaviour change. Once awareness is created, people are more likely to participate in prevention and control activities.[5] This study, therefore, set out to establish the knowledge, awareness and impact of diabetes among adolescents in Uyo, Nigeria.

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Methods

The study was carried out at Adiahaobong Secondary Commercial School, Eniong Offot, Uyo, in the South-South geopolitical zone in Nigeria, as part of activities to mark this year's 2008 World Diabetes Day (of which the theme was 'Diabetes in Adolescents and Children'). The Diabetes Association of Nigeria in the state organised a health education programme on diabetes for the students who were drawn mainly from the senior school category.

A structured questionnaire about the cause, symptoms, treatment, and complications of diabetes was administered to the students to test their knowledge and awareness of diabetes before the commencement of the health education programme.

Four weeks later, the same questionnaire was administered to the students to test the impact of the health education programme on them regarding their knowledge and awareness. In both cases, the questionnaire was administered and collected immediately.

Ethical approval for this study was obtained from the Ethical Committee of the University of Uyo Teaching Hospital, Uyo, and informed consent was obtained from the students before the study was conducted.

Data were analysed using the Statistical Package for Social Sciences (SPSS) version 13. Comparison of means was done using Student's t-test. Comparison of proportions was done using the Chi-squared test. The level of statistical significance was set at $p<0.05$.

Results

A total of 200 female students filled in the questionnaire.

The students were in the Senior Secondary School category with a mean age of 14±3 years. Ten of the students had a relative who had diabetes, while 40 of them said that they knew someone who had diabetes. Eighty (40%) of the students could identify that diabetes is due to insulin deficiency, while 43% said it was related to glucagon and 17% to growth hormone deficiency. However, after the health education 49% identified insulin lack as causing diabetes, though this was not statistically significant. There were 74 (37%) subjects who identified a fasting plasma glucose level >7 mmol/L as the diagnostic cut-off point for diabetes, and this increased to 59% after the health talk. Only 31% of the students agreed that weight reduction could help in diabetes before the talk, and this increased to 48% after the health talk. Twenty-eight percent (28%) of the subjects (56) agreed that diabetes is a life-long disease before the awareness education and this increased to 140 (70%) thereafter. In terms of management of the disease, 48% of the respondents agreed that diet is a form of management of diabetes while only 57 of the respondents agreed that insulin can be used in its treatment. However, after the talk, many more students identified insulin therapy as a form of management with many more of them identifying more than one form of management, i.e. diet, oral medication, and insulin.

In terms of symptomatology of diabetes, excessive passage of urine was the most common symptom identified (120) with repeated infections the symptom least commonly identified by 26 of the respondents. Twenty-four (24) of the subjects could identify more than one symptom of diabetes. After health education, about 158 subjects identified excessive passage of urine as a symptom of diabetes, while 58 of them could identify more than one symptom.

Forty percent (40%) of the subjects before the talk identified type 2 diabetes as the commonest form of the disease, while this increased to 56% after the health talk. In terms of diabetic complications the kidney was the most common organ identified by 150 of the respondents, while the nervous system was the least common (18). After education, the kidney still remained the most common organ identified by 87% of the respondents, while more subjects identified more than one organ as being affected by diabetes. There were 73% who agreed that obesity causes diabetes, and this increased to 90% after the talk. Only 31% agreed that urine sugar cannot be used to diagnose diabetes and this increased to 35% after the talk; while 73% agreed that the type 2 diabetes can be seen in the young, with this figure increasing to 92% after the talk. The knowledge about diabetes amongst the students and the impact of the health awareness talk is shown in Table 1.

Discussion

Diabetes is emerging as one of the world's biggest health problems and its incidence and prevalence is increasing at an alarming rate and reaching epidemic rates globally. Sadly enough, many people are not aware that they have the disease and many do not know about the disease. With the increasing incidence, emphasis is now placed on implementing primary prevention, early detection, and educational preventive programmes.[7] Knowledge about a disease plays a vital role in its future development, early prevention, and detection. Research studies have shown that education in populations about diabetes resulted in a significant increase in knowledge about the disease.[7,8]

Diabetes is caused by the relative or absolute lack of insulin, a hormone produced by the human pancreas. In this study only 40% of the subjects identified lack of insulin as causing diabetes. In a similar study done in Pakistan only 49% of the subjects could identify the cause of diabetes, similar to the poor knowledge in this study.[9]

An important aspect of the management of diabetes is weight reduction, especially in obese type 2 patients. However only 31% of the students agreed that weight reduction was important, although this increased to 48% after health education and this was statistically significant. In a study in India most of the respondents were not aware of the importance of diet in the management of diabetes.[8]

Many of the respondents identified excessive passage of urine as a symptom of diabetes. However other symptoms were less readily identified by the respondents, with many of them identifying more than one symptom of diabetes after the health awareness talk. In Pakistan, only 35% of the respondents identified excessive passage of urine as a symptom of diabetes.[9]

The epidemic of diabetes is clearly mostly related to type 2 diabetes, which is the commonest form of the disease.[11] Only

Table 1 Knowledge, awareness, and impact of health education among the study subjects. Values given are the number of subjects answering questions correctly

Question	Before health talk	After health talk	p value
1. The lack of which hormone causes diabetes?	80 (40%)	98 (49%)	0.17
2. Do you know the blood glucose level currently used in diagnosing diabetes?	74 (37%)	118 (59%)	0.013
3. Is weight loss important in treating diabetes?	62 (31%)	96 (48%)	0.006
4. Is diabetes lifelong?	56 (28%)	140 (70%)	0.0000
5. Is type 2 diabetes the commonest form of diabetes?	80 (40%)	112 (56%)	0.02
6. Does obesity cause diabetes?	146 (73%)	180 (90%)	0.056
7 Can urine sugar can be used to diagnose diabetes?	62 (31%)	70 (35%)	0.48
8 Can type 2 diabetes be found in adolescents?	146 (73%)	184 (92%)	0.03

40% of our respondents agreed with this, and surprisingly, 44% thought that gestational diabetes was the commonest form of diabetes.

Chronic hyperglycaemia causes damage to the microvasculature leading to renal, retinal, and nervous complications of diabetes. Most of the respondents (75%) identified the kidney as an organ that can be affected by diabetes. Diabetes is also a leading cause of blindness, but only 17% of respondents agreed that diabetes could affect the eyes, while even fewer (9%) agreed that it could affect the nerves. A similar study in India showed that 16% agreed that diabetes affects the kidney, increasing to 42% after health education.[7]

A high number of the respondents (73%) agreed that obesity may lead to diabetes. This is encouraging, considering the fact that obesity and type 2 diabetes have a well-established relationship. Body mass index (BMI) is the dominant risk factor for diabetes, and increases in BMI in a population have been shown to predict associated changes in the prevalence of diabetes.[10] In the Indian study 4.6% identified obesity as a risk factor for diabetes and this increased to 10.7% after health education.[7]

Most respondents erroneously agreed that urine sugar can be used to diagnose diabetes. This is due to the fact that in our society many people associate diabetes with sugar in the urine and hence many people wrongly believe that diabetes can be diagnosed using urine sugar. This knowledge was not significantly reduced by health education in this study as 35% still thought that urine sugar could be used for diagnosing diabetes. More health education is needed in this aspect of diabetes to educate the populace.

A significant number (73%) believed that type 2 diabetes can be seen in the adolescent. Most people with type 2 diabetes are above 50 years of age, but with the unhealthy life style of our adolescents we are seeing an increase in type 2 disease in the young. Efforts must be geared towards preventing obesity in these youths by encouraging exercise, healthy eating habits, and school sports in order to enhance the physical well-being of the young population and prevent diabetes.

With the acquisition of the right knowledge by today's adolescents, we may help prevent diabetes in the future, since today's adolescents will be tomorrow's adults. We advocate regular health education about diabetes in our secondary schools and also suggest that diabetes education is included the school curriculum, in view of the global epidemic and the dire health consequences of diabetes.

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