SCHOOL ACHIEVEMENT OF DIABETIC ADOLESCENTS: A PRELIMINARY REPORT

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Abstract

Background: Adolescents struggle to achieve their identity, independence and to cope with all aspect of life. Diabetes may slow the psychological development of adolescents.

Objective: to through a light on the school achievements of adolescents with type I diabetes mellitus.

Methods: 160 diabetic adolescents were included in this study. Full information including age, sex, age of onset, duration, sport activity and admission to the hospital collected. Multiple regression analysis was used to examine the association between the school achievement and the independent variables.

Results: School achievement was significantly associated with visits to diabetic clinics and sport activity.

Conclusion: Visits to diabetic clinics and sport activity improve the school achievement among diabetic adolescents.

Keyword: Adolescents, diabetes mellitus, school achievements

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Introduction

Adolescence period is a transitional period between childhood and adult hood. During this period adolescents struggle to achieve their identity (a major task for this developmental stage), independence and to cope with all aspects of these changes[1,2]. Chronic illness like type I diabetes mellitus {Insulin Dependent Diabetes Mellitus (IDDM)} has an impact on the achievement of the developmental tasks. Diabetes may slow the psychological development of the adolescents, thus affecting their ability to play and enjoy life, share with others, set limits, identify and make commitments. This study was carried out to through light on the school achievement of the adolescents with type I DM.

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Subjects & methods

Adolescents with type 1 DM were enrolled in the study from different diabetic centers (National Diabetic Center at Al-Yarmouk teaching hospital, Diabetic Consultancy Clinic at Al-Kadhmia teaching hospital, Diabetic Consultancy Clinic at Al-Mansour teaching hospital and Diabetic Consultancy Clinic at Ibn Al-Beldy teaching hospital) in Baghdad city. Adolescence period is considered between 12-21 years[3,4]. Each participant was interviewed individually. Questionnaires were checked according to the adolescent's answers. Full information including age, sex, age of onset, duration, sport activity, school activity and admissions to hospital were collected.

A pilot study was done to examine the adolescent's understanding of the questions (instrument items) and to obtain preliminary estimates of the time required for each adolescents and to

determine the validity and reliability of the instrument. The questionnaires were based on the Diabetes Specific Quality of Life Scale[5,6].

Multiple regression analysis was used to examine the association between the dependent variable (school achievement and) with independent variables[7] (demographic variables, visits to diabetic clinic and sport activities). P value less than 0.05 was considered as statistically significant.

Results

A total of 160 diabetic adolescents with type 1 DM were included in the study. Their age range was 12 – 21 years (15.1± 2.3) and 53.8% of them were females. 51.3% of the adolescents had DM for more than five years. The age of onset was less than six years in 78.2% of them. 76.9% of them reported no history of admission to hospital. None of them was in the secondary school, while 33.1% of them were not able read and wrote, 47.5% were in the primary school and 17.5% were in the intermediate school. 53.8% of the adolescents participated in sport activity (Table 1).

Table 1: Characteristics of the diabetic adolescents included in the study

Variable		Number	(%)
Age	≤15 years	98	(61.3)
	>15 years	62	(38.7)
Sex	Male	74	(46.2)
	Female	86	(53.8)
Duration	≤5	78	(48.7)
	>5	82	(51.3)
Age of Onset	≤6	35	(21.8)
	>6	125	(78.2)
Hospital admission	Yes	37	(23.1)
	No	123	(76.9)
School achievement	Not read and write	3	(1.9)
	Primary	53	(33.1)
	Intermediate	76	(47.5)
	Secondary	28	(17.5)
Sport activity	Yes	86	(53.8)
	No	74	(46.2)

School achievement of diabetic adolescents was significantly associated with burden of DM, visits to diabetic clinic and sport activity ($p < 0.05$). School achievement was not associated with age, sex, age of onset and duration of DM. These findings are shown in table 2.

Table 2: Predictors of school achievement among diabetic adolescents

P value	R^2	Predictors
Model I	0.02	NS
Model II	0.015	NS
Model III	0.2	<0.05
Model IV	0.2	<0.05
Model V	0.7	<0.05

Model I: Age, sex, and age of onset, **Model II**: Age, sex, age of onset and duration, **Model III**: Age, sex, age of onset, duration and burden of DM, **Model IV**: Age, sex, age of onset, duration, burden of DM and visits to diabetic clinic, **Model V**: Age, sex, age of onset, duration, burden of DM, visits to diabetic clinic and sport activity

Discussion

The finding that school achievement are not significantly associated with age, sex and duration of diabetes is inconsistent with the findings of Dela Mater[8] and Golden et al[9] . They reported that patients with early onset of diabetes had shown poorer cognitive performance and associated with subsequent learning disabilities. Larsson et al[10] reported that patients in poor metabolic control have a lower educational level. The finding that age and duration of diabetes had no effect on school achievement reflects a good metabolic state achieved in the diabetic clinics included in the study.

Visit to diabetic clinics was positively associated with school achievement. Ryan et al[11] found that children with diabetes missed school twice as much as their peers who do not have diabetes, and the lower school performance was related to the more school absences. Newacheck and Taylor[12] reported an average of annual bed days was 3.6 day and average school absence was 3.1 day among diabetes. In this study, only 23% of the diabetic adolescents were admitted to the hospital (diabetic adolescents with bed days). Visits to diabetic clinics may lead to a good metabolic control reflected by reduced hospital admissions and better school performance.

Faro[1] reported that adolescents are not able to adjust their diabetic regimen to fit their life style. However, better school performance and less bed days found in this study may be attributed to the role of diabetic clinic in monitoring the metabolic control of the diabetic adolescents.

This study shows a positive association between sport activities and school achievement. Campaigne et al[13] found a significant improvements in the glycaemic control in children after training program. Drash[14] reported that maintaining high level of physical fitness provide short and long benefit to individual with diabetes including attendance to good control. In conclusion, visits to diabetic clinic and practicing sport improve the school achievement among diabetic adolescents.

References

1. Faro, B.: The effect of diabetes on adolescent's quality of life. Pediatric Nursing, 1999; 25 (supp.): 147-253.
2. Christain, B.J., D'auria, J.P., and Fox, L.C.: Gaining freedom: self-responsibility in adolescents with diabetes. Pediatric Nursing, 1999; 25: 255-60.
3. Paxaman, J.M., and Zuckerman, R.P.: Laws and polices affecting adolescents health. WHO, editor. Geneve,1987; p.p. 4-10.
4. WHO technical report series. (Health problems of Adolescence: report of WHO Expert Committee), No. 308, 1965.
5. Bott, V., Muhlhauser, I., Overmann, H., and Berger, M.: Validation of a specific quality of life scale for patients with diabetes 1 diabetes. Diabetes Care, 1998; 21: 757-68.
6. Ma'ala, E.G.: Assessment of health related quality of life of diabetic adolescents (Type I diabetes), PhD thesis, College of Nursing, University of Baghdad.
7. Daniel, W.W.: Biostatistics: A foundation for analysis in the health sciences. 7th , New York : John Wiley and Sons. Inc., 1999.
8. Delamater, A.M.: Quality of life in youths with diabetes. Diabetes Spectrum, 2001; 13: 42-46.
9. Golden, M.P., Ingersoll, G.M., Brack, C.I., Russell, B.A., Wright, J.C., and Huberty, T.J.: Longitudinal relationship of a symptomatic hypoglycaemia to cognitive function. Diabetes Care, 1989; 12: 89-93.
10. Larsson, D., Lager, I., and Nilsson, P.M.: Socioeconomic characteristics and quality of life in diabetes mellitus relation to metabolic control. Scand J Public Health, 1999; 27: 101-5.
11. Ryan, C., Langestreet, C., and Marrow, L.: The effects of diabetes mellitus on school attendance and school achievement on adolescents. Child Care Health Devel, 1985; 11: 229-40.
12. Newacheck, P.W., and Taylor, W.R.: Childhood chronic illness, prevalence, severity and impact. Am J Dis Public Health, 1992; 82: 364-71.
13. Campaigne, N.B., Gillian, T.B., Spencer, M.L., Lampoman, R.M., and Schock, M.A.:

Effect of physical activity program on metabolic control and cardiovascular fitness in children with insulin dependent diabetes mellitus. Diabetes Care, 1994; 7: 57-62.

14. Drash, A.L.: Clinical care of diabetes: what is the role of diabetes proffitionals? Diabetic Care, 1984; 17 (suppl): 40-2.