Psychosocial Burden among Adolescents with Type 1 Diabetes: a preliminary report

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ABSTRACT:

BACKGROUND:

Adolescents with type 1 diabetes are faced with a complex set of challenges (developmental changes and demands of the disease). This study was carried out to assess the role of psychological, behavioral and social concern among Iraqi adolescents with type 1 diabetes.

METHODS:

Adolescents with type 1 diabetes were enrolled in the study from different diabetic centers in Baghdad from 1st June to 21st Dec. 2000. Each participant was interviewed individually. Full information including age, sex, duration, sport activity, frequent hospitalization, visits to diabetic clinic and educational level were included. Psychological burden was assessed by determination of social interaction, family interaction, mood, dissatisfaction with body image, emotions, stress and perception. Univariate analysis was used to examine which variables were associated significantly and dependently with psychosocial burden.

RESULTS:

A total of 160 adolescents with type 1 diabetes were included in the study. Their age was 15.1 ± 2.3 years, 53.8% of them were females. 76.9% of the adolescents reported a history of frequent hospitalization. Psychosocial burden was significantly associated with age and sport activity.

CONCLUSION:

The findings point to importance of psychosocial factors in management of diabetes. More research in this area is needed to develop psychosocial intervention program and to demonstrate the cost effectiveness of these approaches.

KEY WORDS: Adolescence, diabetes mellitus type1, psychosocial burden

INTRODUCTION:

Diabetes imposes a considerable demand on adolescents and their families as they are coping (refers to habitual ways of approaching problems) with normal developmental challenges and burden of diabetes [1,2]. Patients with poor psychosocial functioning (depressed mood, failure to develop social competence, feeling of inadequacy, social withdrawal and aggression) have poor glycaemic control [3,4] and in turn have poor neurocognitive functioning (lower reading achievement, learning problems, poor attentional functioning and poor verbal intelligence) [5,6].

This work was carried out to study the role of psychological, behavioral and social concern among Iraqi adolescents with type 1diabetes.

MATERIALS AND METHODS:

Adolescents with type 1diabetes were enrolled in the study from different diabetic centers (National Diabetic Center at Al-Yarmouk teaching hospital, Diabetic Consultancy Clinic at Al-Mansour teaching hospital, Diabetic Consultancy Clinic at Al-Kadhmia teaching hospital and Diabetic Consultancy Clinic at Ibn Al-Balady teaching hospital) in Baghdad city, for the period 1st June through 21st Dec. 2000. Adolescent period is considered between 10 and 20 years [7,8]. Each participant was interviewed individually. Full informations including age, sex, duration of illness, sport activity, frequent hospitalization, visits to diabetic clinics and educational level were collected. Psychosocial burden was assessed by determination of social interaction, family interaction, mood, dissatisfaction with body image, emotions, stress and perception. Different coping styles relevant to management of diabetes were assessed. Coping styles refer to typical and habitual ways of approaching problems [9]. The questionnaires were based on Diabetic Specific Quality of Life Scale [10,11]. Univariate regression analysis was used to examine which variables are significantly and independently associated with psychosocial burden [12]. P value less than 0.05 was considered as statistically significant.

RESULTS:

A total of 160 diabetic adolescents with type 1 diabetes were included in the study. Their mean age was 15.1 ± 2.3 years, and 53.8% of them were

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females; 51.3% of them had the disease for more than five years and 76.9% of the adolescents reported a history of frequent hospitalization.

Psychosocial burden was significantly associated with age, and sport activity ($p < 0.05$), while no significant association was observed with sex, duration, and visits to diabetic clinic, rehospitalization and educational level of adolescents. These findings are shown in Table 1.

DISCUSSION:

There is an obvious lack of accurate information on the exact magnitude of diabetes in Eastern Mediterranean Region [13,14]. Adolescents with type 1diabetes are faced with a complex set of challenges (developmental changes and demands of the disease). Previous studies have tended to focus on relationship between treatment related factors and poor metabolic control [15,16]. However, others [17,18] demonstrated that stress was a significant risk factor for medical maladjustment. Adjustment problems might affect both psychological well being and the course of the disease by contributing to poor self management and poor metabolic control [19,20].

This study revealed that psychosocial burden of diabetes was positively associated with age. Many adolescents have adjustment problems soon after the diagnosis of diabetes [21,22], and most of them resolve the problems after the first year [21]. It is maladaptive coping styles which predict stress. Problem – focused coping (refers to efforts directed toward rational management of a problem and aimed to change the situation causing distress) is generally associated with better adjustment [22]. While avoidance coping (refers to reduce emotional distress caused by stressful event and to manage or regulate emotions that might accompany stressor) is associated with poor specific self care behavior [23]. A relationship between higher levels of avoidance coping and poorer metabolic control was reported [24]. Coping strategies seems to be age dependent. It was found that strategies increase the adolescent's ability to cope with disease might influence both psychological and metabolic adaptation [25]. In a previous communication, age was significantly associated with burden of diabetes on adolescents [26].

Psychosocial burden was associated with sport activity. This result may be attributed to the fact that sport activity in adolescence may reflect the peer interaction. Several workers found that peers play a role in diabetic management among adolescents [27-29]. In Iraq, it was demonstrated that sport activity associated with burden of diabetes and school achievement among diabetic adolescents [11,26].

The finding that psychosocial burden was not significantly associated with sex, is inconsistent with other studies [30-32]. Sources of stress for adolescent girls with diabetes include frequent changes in daily routines (e.g. timing of meals), academic challenges, interpersonal conflicts with family and peers; and in Western countries, Societal messages regarding what is considered attractive contribute to adolescent's concern about their body image [33]. Girls are more concern about their body shape and size and particularly vulnerable to opinion of peers (especially boys) may lead to intentional compromising in disease management (e.g. sever dietary indiscretion and repeated insulin omission) and eating disorders (anorexia nervosa, bulimia nervosa, and excessive exercising and food deprivation) [21,34]. It seems that the situation in Iraq is different than that in Western countries [35].

Psychosocial burden was insignificantly higher among diabetic adolescents with history of frequent hospitalization is in agreement with other studies [2,18,36]. Frequent hospitalization for ketoacidisis or hypoglycaemia should arouse suspicions of an underlying emotional conflict [37].

CONCLUSION:

The findings point to the importance of psychosocial factors in management of diabetes. More research in this area is needed to develop psychosocial intervention programs and to demonstrate the cost effectiveness of these approaches.

Table 1 Analysis of variables associated with psychosocial burden

Variable			
	β	SE	P value
Age	0.58	0.25	0.025
Sex	0.55	1.1	0.6
Visit to diabetic clinic	0.8	0.6	0.2
Frequent hospitalization	-1.5	1.3	0.2
Sport activity	0.4	0.3	0.03
Education	0.7	0.7	0.9

REFERENCES:

1. Hamilton J, Daneman D. Deteriorating diabetes control during adolescence: physiological or psychological? J Pediatr Endocrinol Metab 2002;15:115-126.
2. Jacobson AM, Hauser ST, Willett JB et al. Psychological adjustment to IDDM: 10 years follow up of onset cohort of child and adolescent patients. Diabetes Care 1997;20:811-818.
3. LaGrece AM, Swales T, Klemp S, Madigan S, Skyler J. Adolesecents with diabetes: gender differences in psychosocial functioning and glycaemic control. Children's Health Care 1995;24:61-78.
4. Kovacs M, Goldston D, Obrosky D, Bonar L. Psychiatric disorders in youth with IDDM: rates and risk factors. Diabetes Care 1997;20:36-44.
5. Ryan C, Longstreet C, Marrow L. The effects of diabetes mellitus on the school attendance and school achievement. Child Care Health Dev 1985;11:229-240.
6. Rovet J, Alvarez M. Attentional functioning in children and adolescents with IDDM. Diabetes Care 1997;20:803-810.
7. Paxaman JM, Zuckerman RP. Laws and polices affecting adolescent's health. WHO, Geneva, 1987. pp.4-10.
8. Health problems of adolescences: report of WHO Expert Committee. Who technical report series. No. 308, 1965.
9. Carver CS, Scheier M, Weintroub JK. Assessing coping strategies: a theoretically based approach. J Pers Psychol 1989; 2:267-283.
10. Bott V, Muhlhauser I, Overmann H, Berger M. Validation of specific quality of life scale for patients with diabetes type 1. Diabetic Care 1998; 21:757-768.
11. Al-Hadi A, Al-Diwan JK, Ma'ala EG, Niazi A. School achievement of diabetic adolescents: a preliminary report. Iraqi J Med Sci 2005; 4: 14-17.
12. Daniel WW. Biostatistics: A foundation for analysis in the health sciences. 7th edition, New York, John Wiley and Sons Inc., 1999.
13. Al-Alwan AA. Diabetes in WHO Eastern Mediterranean Region. The Bulletin of the Arab Group for study of Diabetes 1992; 1:17-21.
14. Al-Alwan AA, King H. Diabetes in the Eastern Mediterranean Region. World Health Statistics 1992; 45:355-359.
15. Morris AD, Boyle DIR, McMahon AD, Greene SA, MaeDonald TM, Newton RW. Adherence to insulin treatment, glycaemic control and ketoacidisis in IDDM. Lancet 1997; 350: 1505-1510.
16. Weissberg-Benchell J, Glasgow AM, Tynan WD, Wirtz P, Turej J, Ward J. Adolescent diabetes management and mismanagement. Diabetes Care 1995; 8:77-82.
17. Grossman HY, Brinks S, Hauser ST. Self efficacy in adolescent girls and boys with IDDM. Diabetes Care 1987; 10: 324-329.
18. Graue M, Wentzel-Larsen T, Bru E, Hanestad BR, Sovik O. The coping styles of asolescents with type 1 diabetes are associated with degree of metabolic control. Diabetes Care 2004; 27:1313-1317.
19. Jacobson AM, Hauser ST, Wertlieb D, Woldsdorf J, Orleans J, Viegra M. Psychosocial adjustment of children with recently diagnosed diabetes mellitus. Diabetes Care 1989; 9:323-329.
20. Kovacs M, Feinberg TL, Panlaukas S, Finkelstein R, Pollock M, Crouse-Novak M. Initial coping responses and psychological characteristics of children with insulin-dependent diabetes mellitus. J Pediatr 1985; 166:827-834.
21. Delamater AM, Jacboson AM, Anderson B et al. Psychological therapies in diabetes. Report of psychosocial therapies working group. Diabetes Care 2001; 24: 1286-1292.
22. Hansen CL, Cigrang JA, Harris MA, Carle DL, Relyea G, Burghen GA. Coping styles in youths with IDDM. J Consult Clin Psychol 1989; 57: 644-651.
23. Ebata AT, Moas RH. Personal, situation and contextual correlates of coping in adolescents. J Res Adolesc 1994; 4: 99-125.
24. Seiffage-Kreke I, Stemmler M. Coping with everyday stress and links to medical and psychological adaptation in diabetic adolescents. J Adolesc Health 2003; 33: 180-188.
25. Grey M, Cameron ME, Thurber FW. Coping and adaptation in children with diabetes. J Nur Res 1991; 3: 144-149.
26. Al-Diwan JK. Health related quality of life of diabetic adolescents in Iraq: a preliminary report. Iraqi J Comm Med (in press).
27. Auslander WF, Thompson S, Dreitzer D, White NH, Santiago JV. Disparity in glycaemic control and adherence between African – American and Caucasian youths

with diabetes: family and community contexts. Diabetes Care 1997; 20: 1569- 1575.

28. Anderson BJ, Wolf F, Burkhart M, Cornell R, Bacon G. Effect of peer group intervention on metabolic control of adolescents with IDDM: randomized outpatient study. Diabetes Care 1989; 12: 179-183.

29. Anderson BJ, Brackett J, Ho J, Laffel L. An office intervention to maintain parent – adolescents' team work in diabetes management: impact on parent involvement, family conflict and subsequent glycaemic control. Diabetic Care 1999; 22: 713-721.

30. Salerno M, Argenziana A, Di Mnio S et al. Pubertal growth, sexual malnutrition and final height in children with IDDM: effect of age at onset and metabolic control. Diabetic Care 1997; 20: 721-724.

31. Snock FJ, Skinner TC. Psychological counseling in problematic diabetes: does it help. Diabet Med 2002; 19: 265-273.

32. Beeny LJ, Backery AA, Dunn SM. Patient psychological and information needs when diagnosis is diabetes. Patient Educ Couns 1996;29: 109-116.

33. Harrison K, Cantor J. The relationship between media consumption and eating disorders. J Comm Health 1986;47: 40-67.

34. Jack L Jr. Biopsychosocial factors affecting metabolic control among females adolescents with type 1 diabetes. Diabetes spectrum 2003;16: 154-159.

35. Al-Diwan JK. The coping styles of adolescents with type 1 diabetes. Iraqi J Med Sci 2005;4: 210-213.

36. Bryden KS, Dunger DB, Mayon RA, Peveler RC, Neil AW. Poor prognosis of young adults with type 1 diabetes. Diabetes Care 2003; 20: 1052-1057.

37. Sperling MA. Diabetes mellitus. In: Behrman RE, Kleigman RM, Jenson HB (editors). Nelsons Textbook of Paediatrics, 16th edition. Philadelphia, WB Saunders 2000. pp. 1767-1791.