A REVIEW OF 210 DIABETIC CHILDREN ATTENDING PRDIATRIC DIABETIC CLINIC IN AL-KADHIMIYA TEACHING HOSPITAL FROM 1990-1999

Nashiet A. Nashiet [1] *CABP*, **Namir G. Al-Tawil** [2] *FICMS*, **Shatha H. Ali** [1] *CABP*

Abstract

Background: Insulin dependant diabetes mellitus (IDDM) is one of the chronic irreversible diseases that lead to major complications for children.

Aims: To study some of the factors associated with IDDM.

Subjects & Methods: A review was carried out on 210 newly diagnosed children with IDDM attending the pediatric diabetic clinic in Al-Kadhimiya teaching hospital over 10 years period (January 1990-December 1999).

Results: The majority (82.8%) of our patients aged 6-14 years while the minority (1.4%) was less than two years of age. Male: female ratio was 1.3:1. Family history of IDDM was present in 5.7% of cases. More than half (59%) of cases of our patients live in urban areas, while the rest reside in rural areas. The majority (73.8%) presented with classical symptoms of IDDM, while the rest presented with diabetic ketoacidosis. Around one third of patients presented in winter months. Sixteen patients had preceding history of viral illness or emotional stress.

Conclusion: Factors found to be associated with IDDM were increasing age, male sex, family history, and winter season.

Key words: Diabetes mellitus, Pediatrics, review

Iraqi J Med Sci, 2004; Vol.3(2): 171-174

Introduction

Insulin dependant diabetes mellitus (IDDM) is a chronic irreversible disease of any age characterized by insulinopenia and dependence on injected insulin to sustain life. This clinical entity may be an outcome of different pathological processes; however the exact etiologic mechanism remains unknown. About 25-50% of patients are diagnosed by the age of 15 years[1,2]. In northern Europe and North America, IDDM is the third most frequent severe chronic disease of childhood, second only to asthma and cerebral palsy[3]. In a population that is at modest risk, 3 out of 1000 children develop IDDM. Inter and intra country variation exists in the incidence and prevalence of IDDM[3]. The collection of sound epidemiological data from different geographical parts of the world is vital if the puzzle of pathogenesis of this disease is to be solved, much information on the epidemiology of IDDM from northern hemisphere, but there are only sparse data from Asia. Comparisons of international IDDM registries have shown that a child in Finland is over 60 times more likely than a child in Korea to develop IDDM[3,4]. The first finding reported the seasonal pattern of IDDM incidence roughly correlating with occurrence of infectious diseases. The second finding was the isolation of Coxsackie's virus from a child with diabetic ketoacidosis[5].

Aims of the study:

To study some of the factors that may be associated with IDDM such as age, sex, residency, and seasonality.

Subjects & Methods

A review was done for 210 medical records for children newly diagnosed as cases of IDDM. Those children were attendees of the diabetic clinic for children in Al-Kadhimiya teaching hospital from the period Jan.1990-Dec.1999 (inclusive). The variables studied were age, season of diagnosis, duration of symptoms between onset and diagnosis, residency whether urban or rural, family history of IDDM and non-IDDM (NIDDM). Parental consanguinity, mode of clinical presentations, and the presence of any possible precipitating factors as viral illness or psychological stress. Regarding statistical analysis. X2 test of association was used whenever applicable.

[1]Dept. Pediatrics [2] Dept. Community Medicine, College of Medicine, Al-Nahrain University.
Address correspondence to Dr. Nashiet A. Nashiet, E.mail: naazna2003@yahoo.com.
Received 22nd November 2003: Accepted 19th January 2004.

Results

Table 1 showed that in around one third (30.5%) of patients the age of onset of IDDM was 12-14 years old. It is evident from the same table that 27.6% of patients presents at the age of 6-8 years, whereas few patients presents at the age of two years or less. The trend of patients' attendance to the center was increasing throughout the period of the study..

Table 1: Distribution of patients by age of onset of IDDM and year of attendance

Age years	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total No.	%
≤ 2	0	0	0	1	1	0	0	1	0	0	3	1.4
3-5	1	2	1	1	3	4	5	5	6	5	33	15.7
6-8	3	4	5	5	6	5	7	7	8	8	58	27.6
9-11	3	4	5	4	4	6	5	6	7	8	52	24.8
12-14	3	4	6	4	7	6	7	9	9	9	210	30.5
Total	10	14	17	15	21	21	24	28	30	30	210	100

In table 2, it is evident that the number of male patients overweighed the number of female patients in all age groups. The male to female ratio was 1.36:1.

Table 2: Distribution of patients by age of onset and gender

Age (years)	Male		Female		Total	
	No.	%	No.	%	No.	%
≤ 2	2	66.6	1	33.4	3	100
3-5	20	60.6	13	39.4	33	100
6-8	34	58.6	24	41.4	58	100

Table 3 and figure 1 showed that greater proportions of patients were diagnosed in winter months, and the least number of patients were diagnosed in summer months, and this is applied to all age groups except the age of two years or less. It is evident in figure 2 that more patients (59%) live in urban areas, and the rest live in rural areas.

Ninety six patients (45.7%) had positive family history of diabetes; out of those patients 12 (12.5%) had family history of IDDM, and the

of psychological trauma with an average of 2 weeks before onset of symptoms.

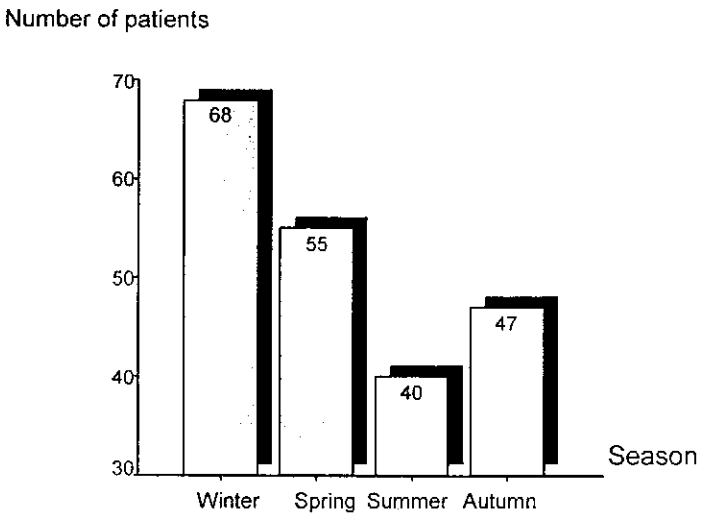

Figure 1: Distribution of patients according to season of diagnosis

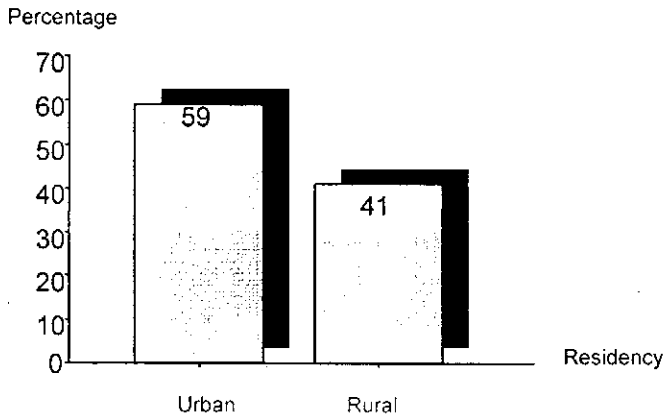

Figure 2: Distribution of patients according to residency

Discussion

In a study done by Ellient et al, the mean age of onset of IDDM was reported to be around 12 years with an increase incidence in the age group 4-6 years and 10-13 years[6]. Results of another study showed that the frequency is highly correlated with increasing age[1]. In our study the peak of presentation occur in two age groups: at 6-8 years of age and 12-14 years of age, comparable results were reported from Alabama[1], Oxford[7], and Sweden[8]. The lowest frequency of cases was found among patients aged 2 years or less, comparable results were observed in other studies[9,10].

The first peak corresponds to the time of increased exposure to infectious agents coincident with the beginning of school, the latter to the pubertal growth hormone secretion, which antagonizes insulin action and to the psychological stresses accompanying puberty[9,11].

Males were predominant in all age groups, similar results were reported from Oxford[7], Saudi Arabia[12], Denmark[13], and Norway[14], but were opposite to that experienced by Lynne from Alabama[1] who stated that males and females are equally affected.

The family history of DM was positive in (40% of cases) higher figures were reported from Saudi Arabia[15] (56.7%) and U.K[7]; in our study 12 (5.7%) had positive family history of NIDDM, this is less from that reported from Sweden[16] which stated that the family history of DM by Joner was Positive in 8.7% and 43% for IDDM and NIDDM, respectively.

The parental consanguinity rate (21%) was slightly higher from that reported in Saudi Arabia[12]. The frequency of cases in the first degree relatives was 5.7% which was similar to reported from U.K[7,13].

More cases resided in urban areas. This may be explained by the fact that the hospital is located in an urban area, and may be related to exposure to toxic substances or stressful life events in urban areas, or to differences in feeding habits in the two areas.

In our study frank clinical picture of DKA was found in 20.5% which is higher than that reported from USA (10%)[5,15,17], this may be due to difference in health care and educational level. The predominance of viral infections in winter and autumn may give an explanation to our findings (more cases during these seasons).

Conclusion

In this ten years review the frequency of cases was increasing through out the years in all age groups except fewer than 2 years of age, with male predominance.

Recommendation

We need further and strenuous efforts to find out reliable data for incidence of IDDM in children less than 18 years of age in Iraqi population and then to use this data base to study the impact of environmental factors with special emphasis on changes in living conditions, panorama of viral

infection, immunization practice, breast feeding habits and socioeconomic status through the establishments of an Iraqi diabetic association registry.

References

1. Lynn, E.: Epidemiology of IDDM in blacks and white children in Jefferson county Alabama. J Am Diab Assoc, 1991; 5: 38-45.
2. Gortmark, S.I., and Sappenfeild, W.: Chronic childhood disorders: Prevalence and impact. Pediat Clin North Am, 1990; 31 (1): 3-18.
3. Sutton, D.L., and David, M.: Incidence and prevalence of IDDM in the zero to 19 years age group in Sydney. Med J Australia, 1989; 151: 33-9.
4. WHO: Diabetes Mellitus. Technical report, No.727, 1985.
5. Rewers, M., Laporte, R.E., and Tuomilhto, I.O.: Trends in the prevalence and incidence of IDDM in childhood. World Health State, 1988; 211: 179-89.
6. Ellient, R.B., Pilcher, C.C., and McGregor, M.: Asbbey prevention of diabetes in large chart of school children. Pediatrics and Adolescent Endocrinology. BMJ, 1994; 3: 189-98.
7. Bingly, P.J.: Incidence of IDDM in England, a study in Oxford region. BMJ, 1991; 985-986.
8. The Swedish Childhood Diabetes Study. Diabetologia.1989; 32 (2): 2-6.
9. Sperling, M.A.: Diabetes Mellitus in Children. In: Behrman, R., Kliegman, R.M., Jenson, H.B.: Nelson Text book of Pediatric, 16th edition. Philadelphia Pennsylvania, W.B. Saunders Company. 2000; 599: 1767-8.
10. Cahill, G.F., and Devit, M.C.: IDDM the initial lesion. N Eng J Med, 1989; 304: 1454-64.
11. Dahliquist, G.: The etiology of Type 1 Diabetes: an epidemiological perspective. Acta Paediatrica, 1998; 87: 5-10.
12. Epidemiology of IDDM and Diabetic Cares. Am Diab Assoc, 1992; 12: 651-2.
13. Al-Hassani, M.: Islet cell antibodies, epidemiology reviews, John Hopkins University Maryland USA.1993; 11: 661-75.
14. Joner, G., and Sovik, O.: Increasing Incidence of IDDM in Norwegian Children 0-14 years. Diabetologia, 1989; 32 (2): 73-82.
15. Mohamed, A., and Abdullah, A.: The clinical presentation of diabetes mellitus in Riyadh-Saudi Arabia. Saudi Med J, 1989; 10 (6): 495-7.
16. Dahlquist, G., Laporte, R.E., and Killer, L.H.: The epidemiology of Diabetes in Swedish Children 0-14 years. Diabetologia, 1985; 28: 802-6.
17. Minura, G.: Epidemiology of Diabetes in Asia especially Japan. Excerpta Medica, 1990; 34: 331-44.