

Epidemiology, Demographic Criteria and Risk Factors in Type 1 DM Egyptian Children; A Single Center Study

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Background

Type 1 DM is a chronic metabolic disease. Its incidence is rising worldwide. Daily management is difficult and involves daily insulin administration, monitoring of blood glucose levels and meal planning. Regular screening for comorbid conditions and complications is mandatory. This represents a burden on patients, families and health care professionals.

We studied demographic criteria, risk factors and epidemiology of children with type 1 DM attending our diabetes control clinic. In Cairo University Children's Hospital.

Objectives

The aim of this study was to determine the clinical and laboratory criteria of all the children with T1DM, referred to or following up in the Diabetes, Endocrine and Metabolism Pediatric Unit (DEMPU) outpatient clinic of Cairo University Children's Hospital, and to determine the adequacy of and compliance with treatment.

Patients and Methods

- This cross sectional study included all children between 1-18 years diagnosed with type 1 diabetes and following up in DEMPU clinic, Cairo University Children's Hospital.
- From April 2017 to April 2018 all patients who attended the diabetes follow up clinic were included.
- History taking included: present age, age at diagnosis, gender, place of birth and living, consanguinity, family history of diabetes, order of index case, socioeconomic status, vitamin D administration, feeding in the first 6 months of life, time of weaning, mode of presentation, complications of DM and whether of not diabetes education had been received
- A thorough clinical examination was conducted and included: anthropometric measures, assessment of diabetes complications and/or comorbidities. Thyroid profile, \pm microalbumin in urine, TTG, mean lipid profile, mean HbA1c during the preceding year were collected from files.

Patient Characteristics

- The current study included 2785 children and adolescents with type 1
- Males represented 42% of the study group while 58% were females. There was a negative consanguinity in 61% of the patients while 38.7% were from consanguineous marriages.

•Table 1: Demographic data of the patients (No=2785)

| | Age (years) | Number of Siblings | Order of index case | Time of weaning (months) | Duration of diabetic condition (months) | HbA1c |
|-----------------------|-------------|--------------------|---------------------|--------------------------|---|-------|
| Mean | 8.35 | 3 | 2 | 16.3 | 34 | 8.82 |
| Median | 9 | 3 | 2 | 18 | 24 | 8.4 |
| Std. Deviation | 3.74 | 1.453 | 1.266 | 5.711 | 35.083 | 1.84 |
| Minimum | 1 | 0 | 1 | 1 | 1 | 4.8 |
| Maximum | 14 | 8 | 8 | 36 | 168 | 14.7 |

Results

55.9% of patients first presented in DKA, 34.2% presented by polyuria.

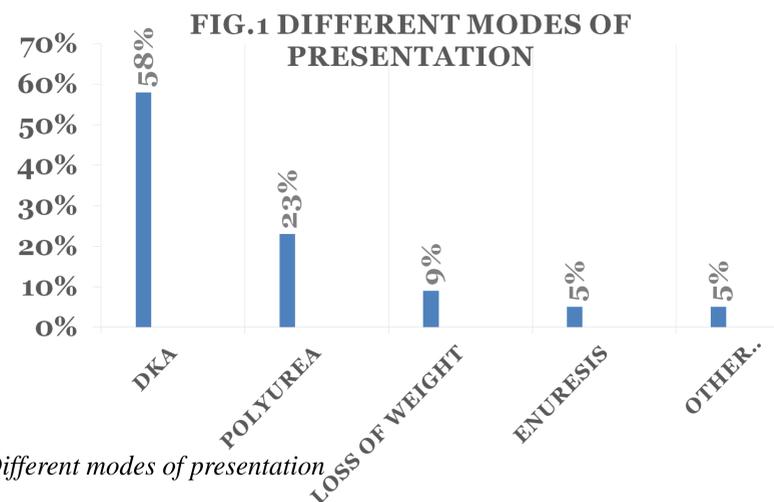


Figure 1: Different modes of presentation

About 39.2% were affected by T1DM in winter, 33.8% in summer, 15% in spring while 12% were affected in autumn.

A full course diabetes education was delivered to 74% of the patients and their caregivers.

Regarding measurements, mean height SDS and weight SDS were 0.32 ± 2.6 and 0.38 ± 1.2 respectively at time of study. A total of 74.6% had been breast fed, another 13.2% had received cow milk and yoghurt during first the 6 months of life, 7.9% received breast feeding with artificial formula supplementation and the final percent (4.3%) of patients had received artificial feeding only.

Logistic regression analysis was used in this study to find out the most labile risk factors for type 1 DM. The study used the HbA1c level as an indicator for the risk factors. Significant risk factors for T1DM ($p < 0.05$) were found to be insufficient breast feeding, compulsory vaccinations and chest infections.

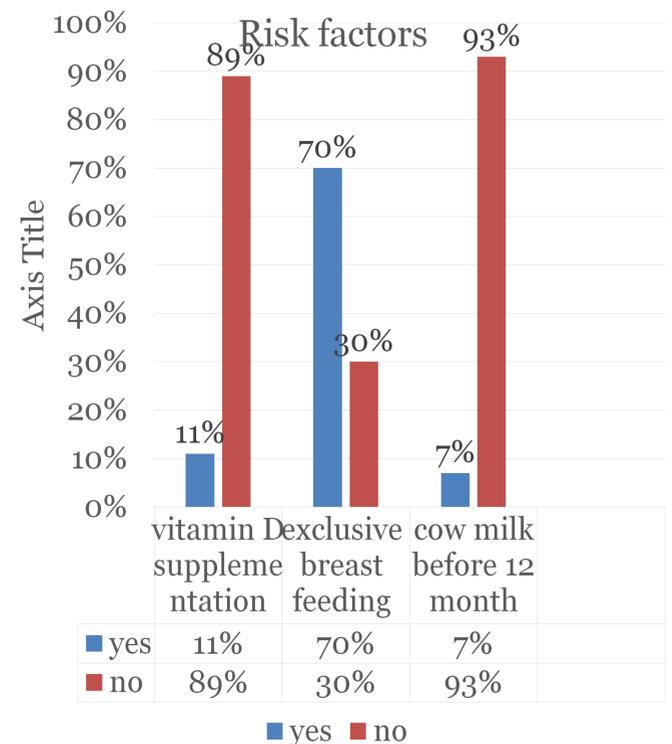


Figure 2: Risk factors for type 1 diabetes

Conclusion

DKA is still the most common presentation of T1DM.

Improving vitamin D status among children and breast feeding in the first 6 months of life may be protective against development of T1DM. Chest infections and compulsory childhood vaccination MAY be risk factors for T1DM.

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