Seasonality of type 1 diabetes in children and adolescents according to date of diagnosis and date of birth in a large diabetes centre, the last 6 years.

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The authors have nothing to disclose

Background

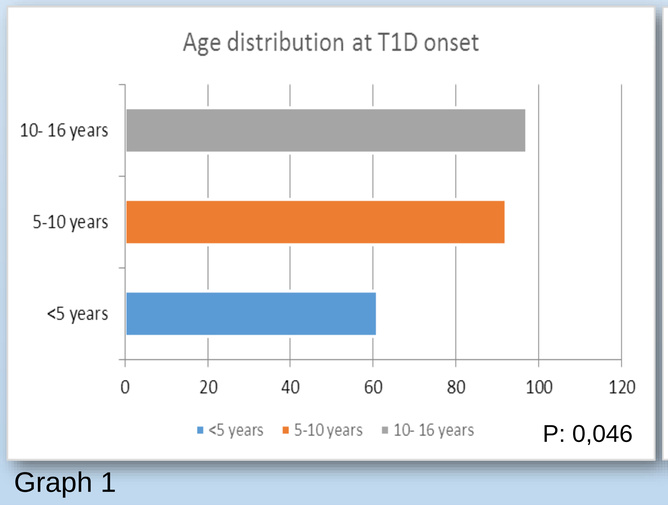
There are studies supporting the seasonality of Type 1 Diabetes (T1D) according to date of diagnosis and date of birth, with most T1D children being diagnosed in fall and winter and most of them been born in the same period. Most of these data derive from national and international (like EURODIAB) registries[2]. In our country there is not yet a nationwide diabetes registry, but there are previously published data from 1978 to 2008 from a large diabetes center of Athens that are in concordance with the previously described ones.[1]

Objective and hypotheses

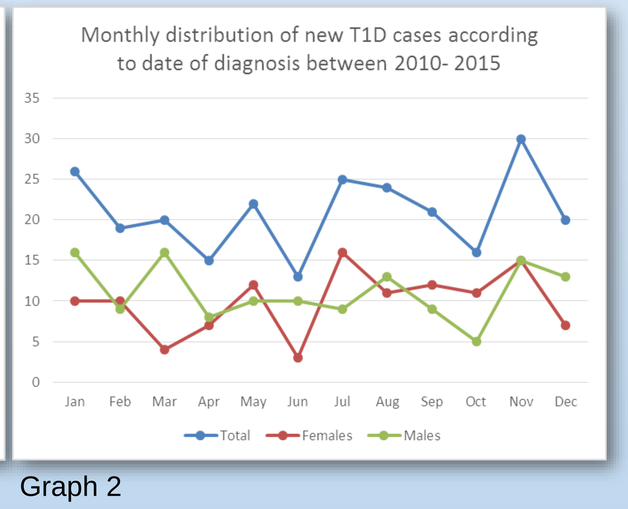
To assess whether there is a seasonal variation of diabetes onset according to date of diagnosis and date of birth of incident cases, in a large cohort of newly diagnosed T1D children aged 0–16 y, between 2010 and 2015.

Methods

We retrospectively collected data of 250 children and adolescents (120 females, *P*: 0.37) aged 0–16 years (mean age 8.28±4.04 years) admitted in our clinic with newly diagnosed T1D between 2010 and 2015. We investigated whether there was a seasonality of diabetes onset according to date of diagnosis and date of birth of the patients. For the data analysis we used Pearson’s chi-square statistical method.



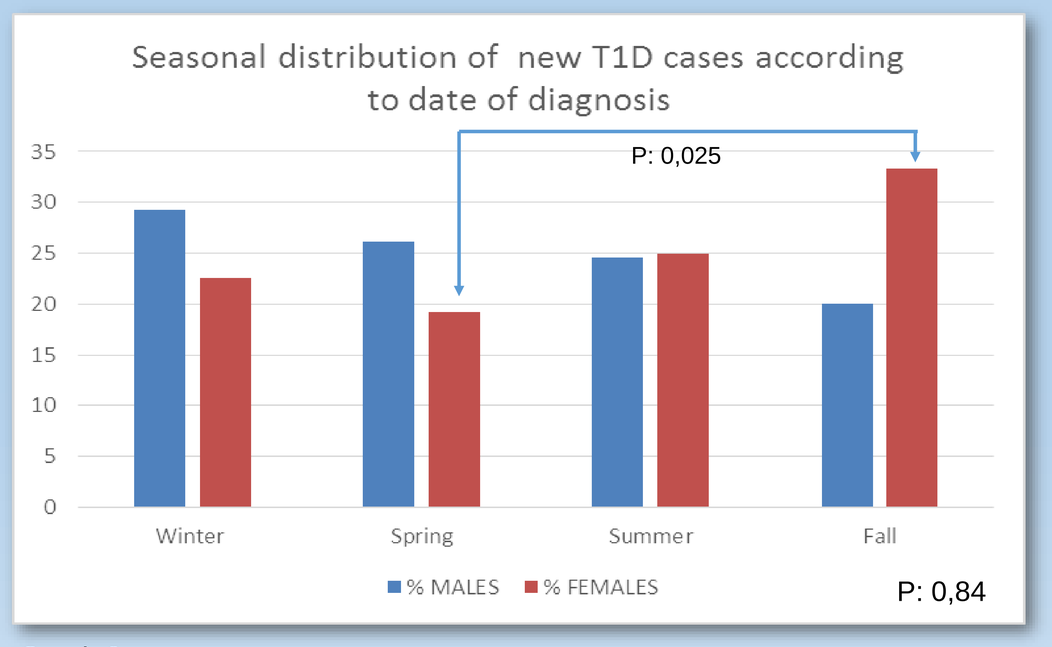
Graph 1



Graph 2

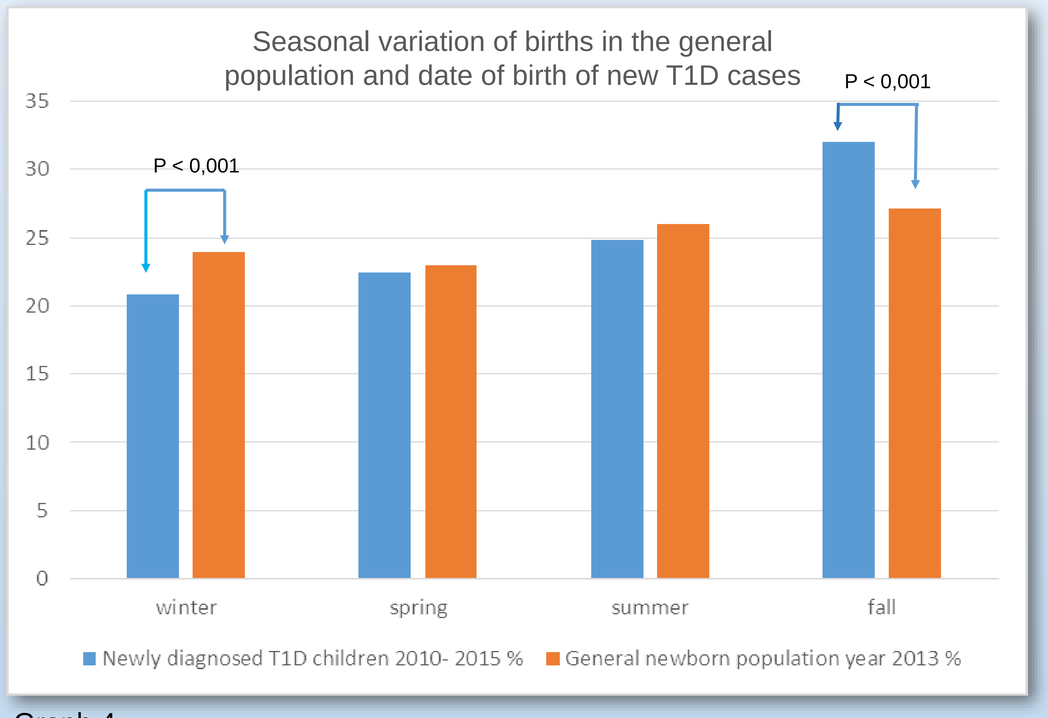
Results

In our cohort there was a significant prevalence of children aged >5 years (92, 36.8% for the age group 5–10 years and 97, 38.8% for the age group 10–16 years) comparing to those <5 years (61, 24.4%), (*P*: 0.046) (graph 1). According to the date of diagnosis there was no statistically significant seasonal variation of diabetes onset (*P*: 0.84) in general. However, for females there was a statistically significant higher occurrence in fall and than in spring (P: 0.025) There was no difference between children <5 years and the older ones (p> 0,05) at that point. (graphs 2 and 3).



Graph 3

As far as the date of birth of the incident cases is concerned, there was a statistically significant difference between children born in fall (80 children, 32%) than those born in spring (56, 22.4%) and winter (52, 20.8%), respectively (*P*: 0.02). There were no difference between males and females at that point. We also checked if this difference was observed due to the seasonal variation of births in the general population, so we evaluated the total births in year 2013 and showed that there was a nearly same distribution of births comparing to date of birth of newly diagnosed T1D children between 2010- 2015. Nevertheless, the children with newly diagnosed T1D born in fall were significantly more than those of the general population born in fall, and those with T1D born in winter were significantly less than those of the general population born in winter in the year 2013. (graph 4)



Graph 4

Conclusion

In our cohort of newly diagnosed T1D children and adolescents there was no apparent seasonal variation according to date of diagnosis, except of a predominance of diagnosis of T1D in fall comparing to spring observed among newly diagnosed girls. This is in contrast to previously published data that referred to the same population and must be further evaluated. This is also in contrast with data from northern countries and could be attributed to the mild temperature variations throughout the year in the Mediterranean area[3,4]. However, there was a significantly higher prevalence of T1D children born in fall than in winter and spring respectively, something that also differs from previously published data (the most T1D were born in spring and summer). The latter cannot be attributed to normal seasonal variation of births in our country. Limitations of the study are its relatively short observation period and that the data derive from a single- center experience, though large, and not from a national registry as planned for the coming years.

References:

1. M.I. Kalliora et al, “Seasonal variation of type 1 diabetes mellitus diagnosis in Greek children”, Hormones 2011, 10(1):67-71
2. PA McKinney, EURODIAB seasonality of birth group. Europe and Diabetes. “Seasonality of birth in patients with childhood Type I diabetes in 19 European regions.” Diabetologia 2001;44:B67–74.
3. E. A.J.M. Spaans et al, “Seasonality of diagnosis of type 1 diabetes mellitus in the Netherlands (Young Dudes-2)”, J Pediatr Endocrinol Metab 2016; 29(6): 657–661
4. J. Ye et al, “Lack of seasonality in the month of onset of childhood IDDM (0.7–15 years) in Shanghai”, China. J Pediatr Endocrinol Metab 1998; 11:461–4.

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