

EP-939 Thyroid non-cancer: Seasonality in paediatric graves disease compared to the general population: Impact of month of birth - a national study



Nunes da Silva T., Dias Pereira B., Vara Luiz H., Matos AC., Cordeiro MC., Raimundo L., Portugal J.
Department of Endocrinology and Diabetes Hospital Garcia de Orta Almada Portugal

Introduction

Paediatric Graves' disease (PGD) is an uncommon autoimmune disorder with a multifactorial origin. In some autoimmune endocrinopathies the seasonality of month of birth (MOB) distribution differed from the general population. In thyroid autoimmune disease an association between increased incidence and seasonal pattern of MOB has only been published in adults. This is the first national study of seasonality of MOB in PGD.

Objectives

The aim of this work was to analyse the impact of seasonality of MOB on PGD incidence in Portugal.

Methods

In 2013, the Portuguese Paediatric Society of Diabetes and Endocrinology undertook a national multicentre study of the PGD (153 cases). We compared the distribution of MOB within this study with the Portuguese population (data from the National Institute of Statistics). Since the mean age at diagnosis was 11 years, we restricted the study period to 2001 to correct for that variation (125 cases). To evaluate whether the subgroup with higher autoimmune response had a stronger seasonal pattern we selected the cases with TRABS at diagnosis 10 times above the upper limit of normal (50 cases). The Walter and Elwood method was used because it takes into account the population at risk. The statistical analysis was performed with STATA software version 12.0.

Results

Whole cohort

A total of 125 cases of PGD were recorded (75% female) compared to 2.271.523 births (49% females).

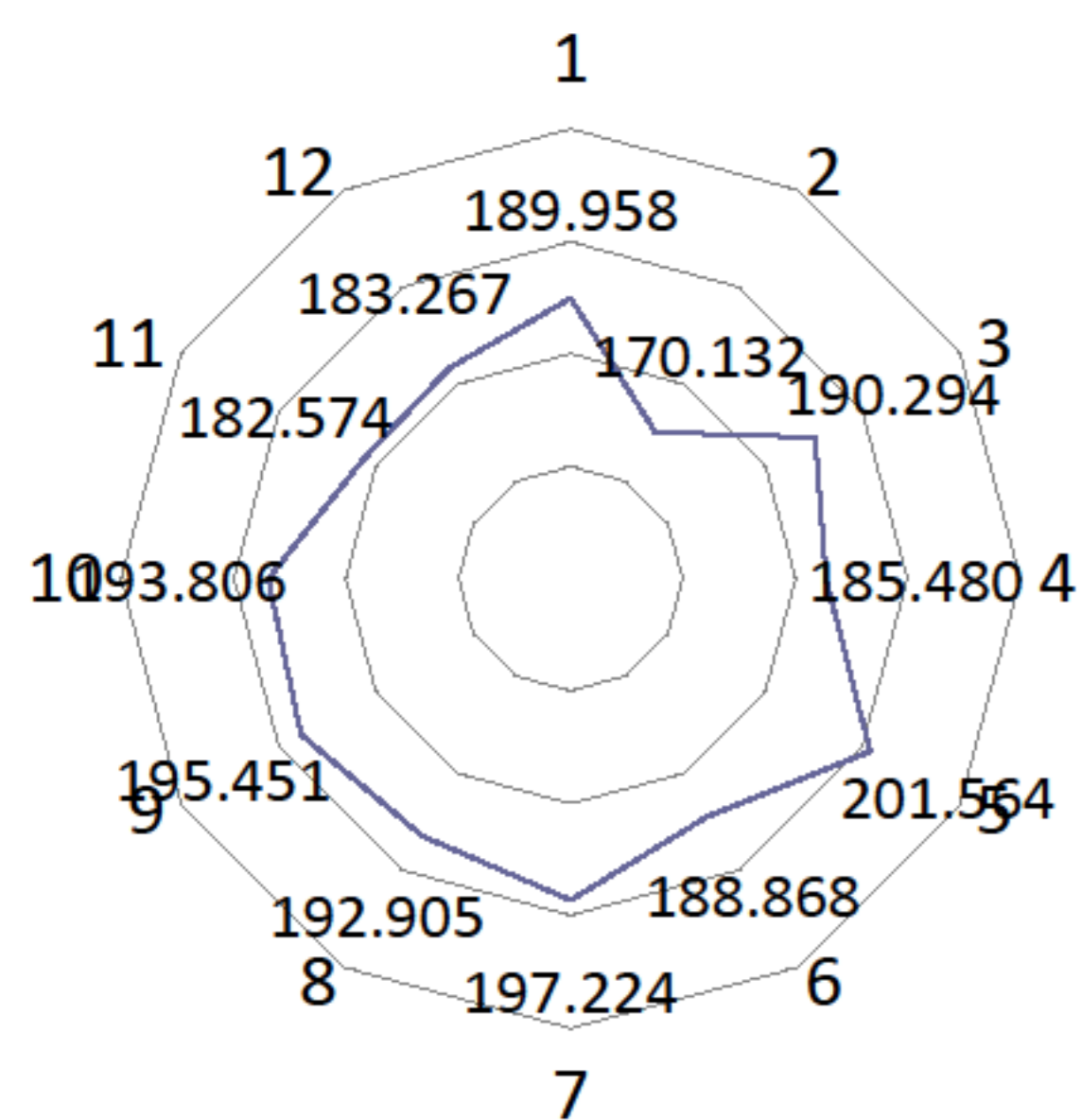


Fig. 1: Average distribution of MOB (cases per month) for the Portuguese population born between 1983 and 2001

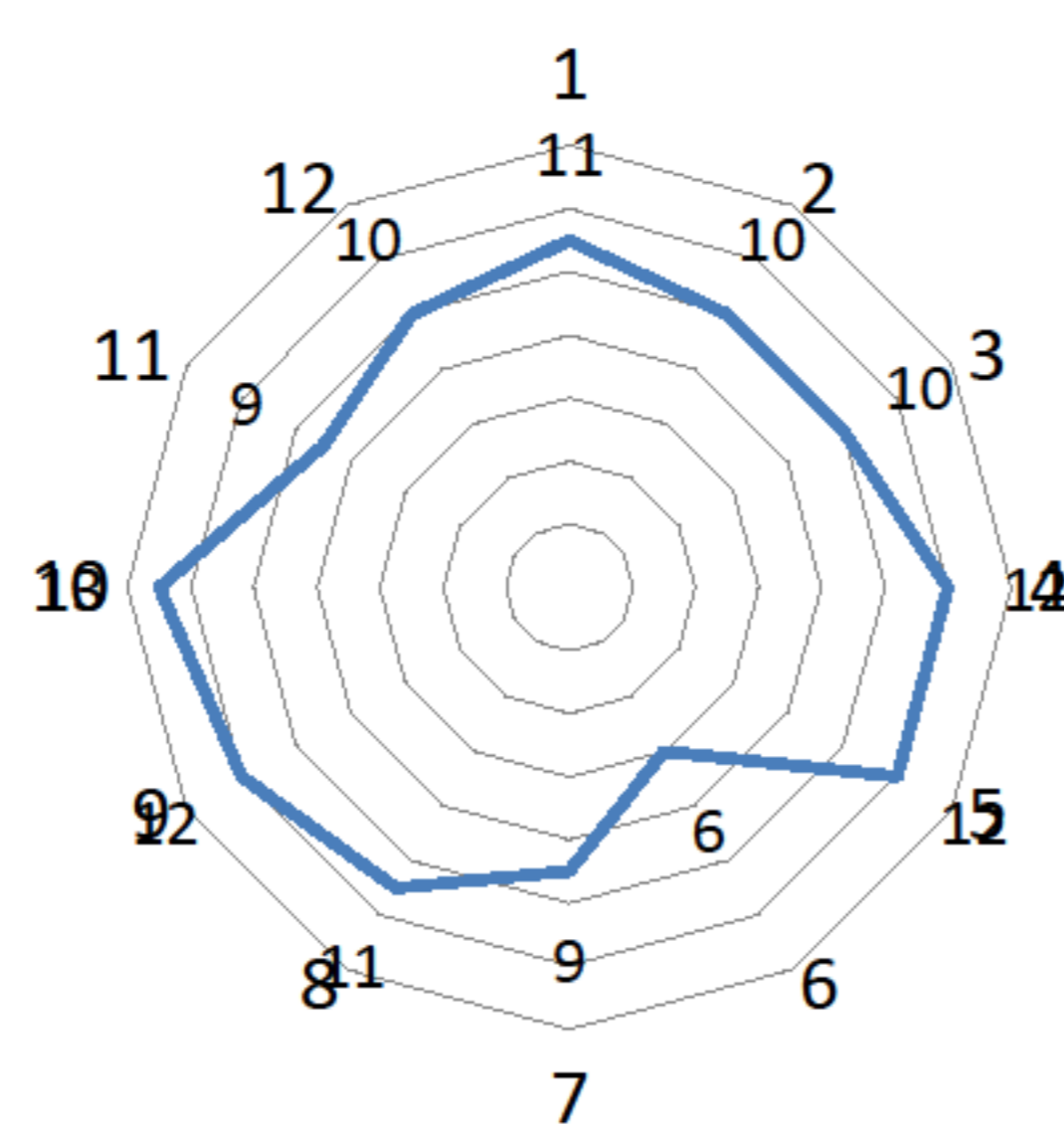


Fig. 2: Average distribution of MOB (cases per month) for the PGD cases born between 1983 and 2001

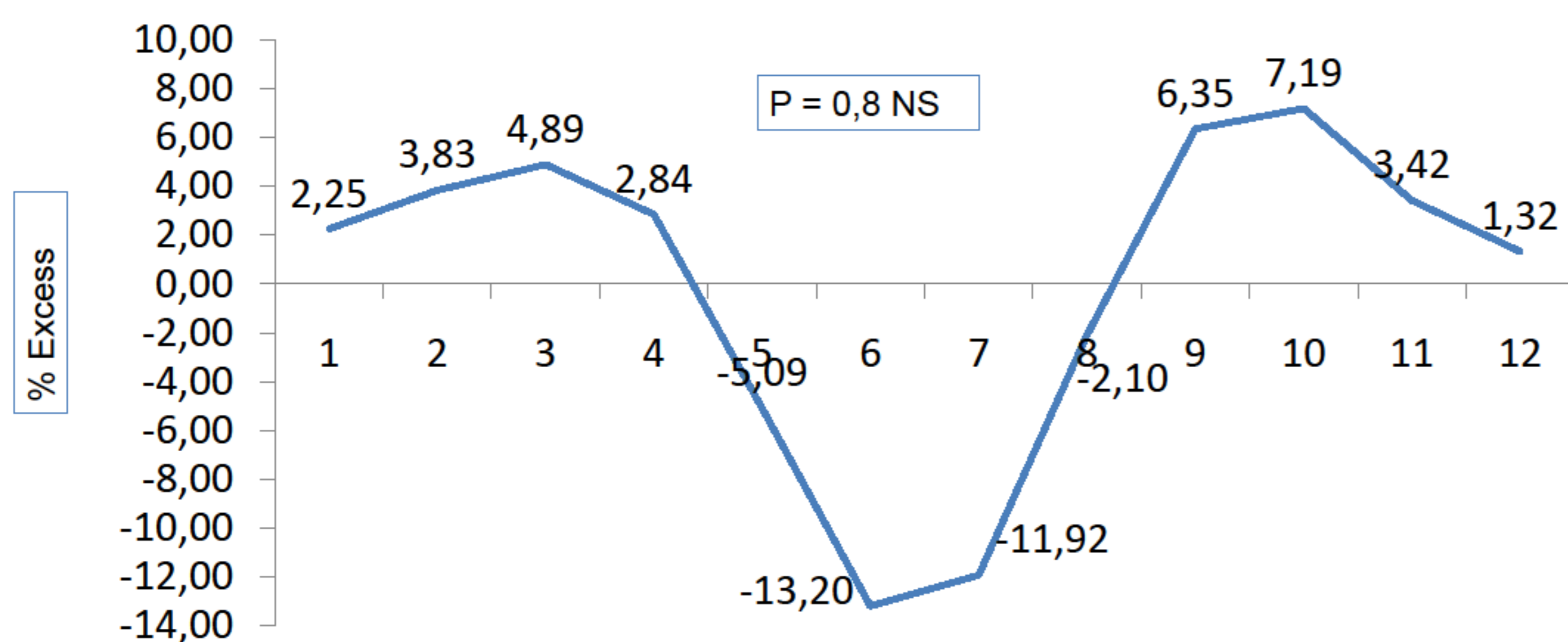


Fig. 3: Estimates of relative PGD prevalence associated with month of birth. Data is displayed as the smoothed % ratio of PGD to the general population. The P value is derived from Walter and Elwood method of the 12 birth-month estimates, irrespective of smoothing.

TRABS >10x ULN

A total of 50 cases of PGD were recorded (74% female) with an average TRAB level of 36,28 (10-66 mul/L)

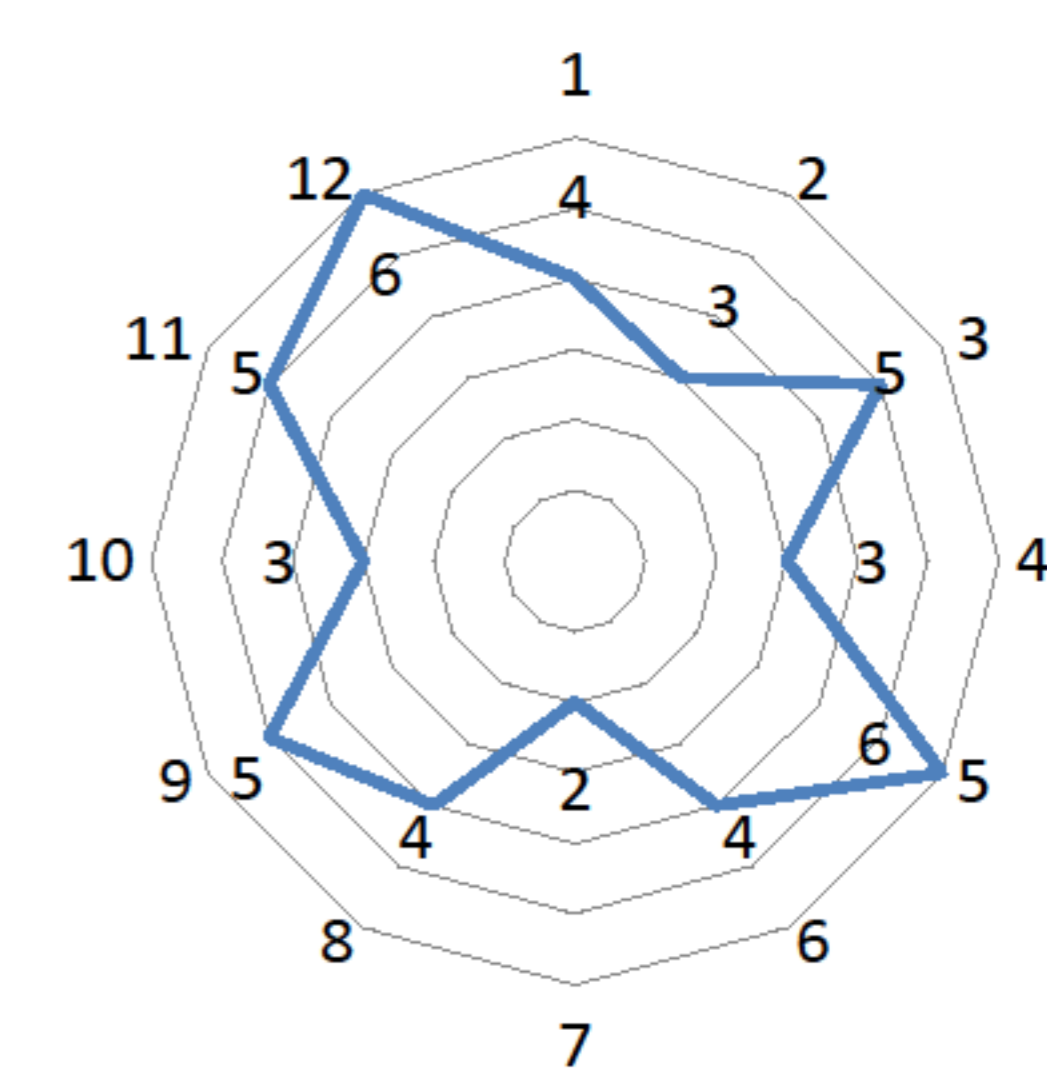


Fig. 4: Average distribution of MOB (cases per month) for the PGD cases (TRABS >10x ULN) born between 1983 and 2001

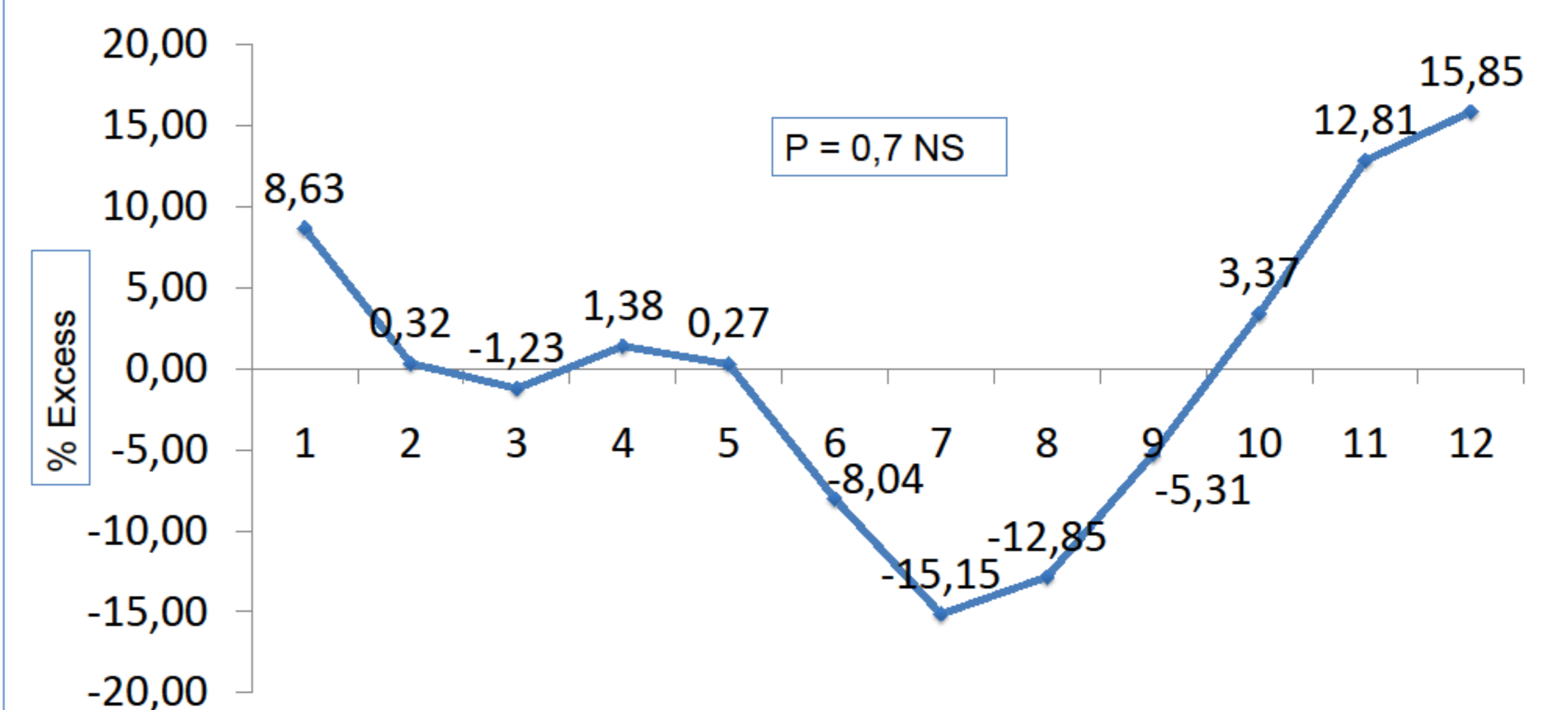


Fig. 5: Estimates of relative PGD prevalence (with TRABS > 10x ULN) associated with month of birth. Data is displayed as the smoothed % ratio of PGD to the general population. The P value is derived from Walter and Elwood method of the 12 birth-month estimates, irrespective of smoothing.

Conclusions

This was the first population-based study that analysed the impact of seasonality of MOB in the incidence of PGD. Despite a trend to a higher incidence of PGD in children born between September and April, no uniform seasonal pattern of MOB in PGD was observed in this sample of the Portuguese population either in the whole cohort or in the subgroup with higher TRAB titers.

We thank the Portuguese Paediatric Society of Diabetes and Endocrinology for allowing the study data to be used in this work.

References

Henry S Kahn et al *Diabetes Care* 2009
Kassas et al *European Journal of Endocrinology* 2007