Rising of type 1 diabetes mellitus incidence in Chilean children between 2006 and 2014. Final Results

C. Garfias1, Pinochet C2

1Division of Pediatrics, Pontificia Universidad Católica de Chile School of Medicine, Santiago, Chile. 2Millennium Institute on Immunology and Immunotherapy, Santiago, Chile.

Background

Type 1 diabetes mellitus (T1D) incidence in children varies across regions and countries, with rates up to 65/100,000 in Finland. There are no recent epidemiological studies of T1D incidence in South America. Between 1990 - 1999 the DIAMOND study showed an incidence of 7/100,000 in Chilean for younger than 15 years.

Objetives

To determine the incidence of T1D in children in Chile between 2006 and 2014.

Methods

We reviewed mandatory notifications of T1D in Chile’s public health system in population younger than 20 years between 2006 and 2014. Data were obtained from the Department of Information Management of the Chilean Ministry of Health an were analyzed according sex, age, region and season. Time trends of T1D incidence were analyzed by linear and exponential regressions.

Results

A total of 4,153 T1D cases occurred in children under 20 years from 2006 to 2016. Median age was 14 (IQR 10-17). Highest caseload of T1D incidence occurred in winter (28%) and lowest in spring(21%).

The average annual T1D incidence was 12.5/100,000, with an increase from 10.3 in 2006 to 16.3 in 2012 (β 0.8, 95%CI 0.6-0.9, P=0.001) figure1. A significant increasing linear trend of T1D incidence was observed in groups of age 0-4 years (β 0.3, 95%CI 0.06-0.6, p=0.02), 5-9 years (β 0.7 95%CI 0.2 – 1.27, p =0.009) and 10-14 (β 0.88, 95%CI 0.62-1.14, p<0.001), but not in age 15-19y, a non-significant increasing or decreasing trend was observed (β 0.027, 95%CI -0.31 to 0.37, p=0.85) Figure 2

The lowest regional incidence of T1D was observed in the Araucanía (IX) and Los Rios (XIV) region. This difference is significate less than the incidence of the Metropolitan region, (p<0.03 and p< 0.05 respectively, with 95% CI), Araucania region has the largest percentage of population of indigenous Mapuche ethnicity

Incidence rates of T1D in Chile are rapidly increasing, particularly in younger age groups. If increasing trends persist we estimate Chile will reach T1D incidence rates of western developed countries in the next decade. (18/100,000 under 15 years in 2018)

The low rate of T1D observed in regions with high Mapuche ethnicity rates may suggest protective genetic factors.