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Poster abstracts

Is there a relation between birth month and risk of childhood leukaemia? A case-control study in two Italian provinces

Marcella Malavolti[1], Tommaso Filippini[1], Carlotta Malagoli[1], Silvia Cilloni[1], Lucia Borsari[1], Marco Vinceti[1,2]

[1]Environmental, Genetic and Nutritional Epidemiology Research Center (CREAGEN), Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Modena, Italy; [2]Department of Epidemiology, Boston University School of Public Health, Boston, USA.

marcella.malavolti@unimore.it

Introduction

Seasonal variation of month of birth suggests that exposures acting close to birth are aetiologically relevant for lifetime disease risk (Boland *et al*, 2015). In order to investigate the association between risk of childhood leukaemia and early life exposure to infectious factors, some studies have used the month or the birth season as an indicator of neonatal infection (Goujon-Bellec *et al*, 2013; Marcotte *et al*, 2014). In this case-control study we evaluated the childhood leukaemia (CL) risk and in particular the Acute Lymphoblastic Leukaemia (ALL) risk compared to the month children are born.

Methods

Through the Italian National Childhood Cancer Register we have identified all diagnosed cases of childhood leukaemia between 1998–2013 in Modena and Reggio Emilia provinces. From the general population, we selected four children matched by sex, year of birth and province of residence to each case. Through conditional logistic regression we calculated the ALL odds ratio (OR) and the respective 95% confidence interval (95% CI), adopting December as reference month being just before the beginning of the winter influence peak.

Results

We identified 138 CL cases (including 110 cases of ALL) and 552 controls. Density distribution showed a bimodal trend for the CL cases, as well as for ALL, with a first peak in the months of February-April and a second lower peak in September-October. Corresponding estimates showed an increased risk for children born in February with OR of 3.94 (95% CI 1.21 - 12.80) for CL and 5.84 (1.54 - 22.09) for ALL, while the or for those born in the month of April was 5.55 (1.79 - 17.17) for CL and 5.55 (1.52 - 20.23) per ALL.

Conclusions

Despite the imprecision of our estimates due to the low number of included cases and the inability to assess the actual history of infectious of children, study results suggest an influence of birth month on the risk of childhood leukaemia, with particular reference to the ALL subtype and the February-April period.

References

Boland *et al*, (2015) J Am Med Inform Assoc 22: 1042 – 1053

Goujon-Bellec *et al*, (2013) Cancer Epidemiol 37: 255 – 261

Marcotte *et al*, (2014) Cancer Epidemiol Biomarkers Prev 23: 1195 – 1203