

Childhood cancer incidence and survival in Spain

R. Peris-Bonet^{1,2*}, D. Salmerón^{2,3}, M. A. Martínez-Beneito⁴, J. Galceran⁵, R. Marcos-Gragera^{6,7}, S. Felipe¹, V. González¹ & J. Sánchez de Toledo Codina^{8,9} for the Spanish Childhood Cancer Epidemiology Working Group[†]

¹Spanish National Childhood Cancer Registry (RNTI-SEHOP), Spanish Society of Paediatric Haematology and Oncology, and University of Valencia, Valencia;

²Consortium for Biomedical Research in Epidemiology and Public Health (CIBER en Epidemiología y Salud Pública CIBERESP); ³Department of Epidemiology, Regional Health Authority, Murcia; ⁴Public Health Research Centre (CSISP), Valencia; ⁵Tarragona Cancer Registry, Foundation Society for Cancer Research and Prevention, Reus, Pere Virgili Health Research Institute; ⁶Girona Epidemiology Unit and Cancer Registry, Department of Health, Girona; ⁷Nursing Department, Girona University, Girona; ⁸Spanish Cancer Research Network (RTICC) Board and ⁹Paediatric Oncology and Haematology Department, Vall d'Hebron Children's Hospital, Barcelona, Spain

Background: This article affords an overview of the patterns and time trends of childhood cancer incidence (1983–2002) and survival (1991–2002) in Spain.

Patients and methods: A population-based study was conducted, including 5936 cases for incidence and 3257 for survival analyses. Differences in incidence were tested with the standardised incidence ratio. Trends were analysed for all tumours, and for all malignant, haematological, central nervous system (CNS) (all and only malignant) and other solid tumours. Incidence trends were analysed using Poisson and Bayesian joinpoint models. Observed, relative and age-adjusted survival rates were calculated, and trends were tested using the log-rank test.

Results: The incidence pattern in Spain was similar to that in Europe. Rates, both overall and for leukaemias, lymphomas, CNS, soft tissue and, remarkably, for sympathetic nervous system and bone tumours, were high. Upward incidence trends were present for all tumour groups. All groups, except solid tumours (excluding CNS), displayed a change-point centred around 1990–95, after which the trend stopped rising. Five-year survival increased significantly across the period for all groups, except for CNS tumours. Recent survival results were in line with Italy, the UK and the European average.

Conclusions: To confirm these results, ongoing surveillance of incidence and survival trends, and studies targeting specific tumours are called for.

Key words: cancer registries, childhood cancer, incidence, survival, trends, Spain

Introduction

Approximately 900–950 children are diagnosed with cancer each year in Spain. Childhood cancer has a tremendous impact on the families affected and is an important concern for public health, medical care and society. It is the main cause of disease-related death in childhood [1]. Owing to improvements in survival, increasing numbers of survivors are at risk of health problems [2]. Lack of knowledge as to the causes of childhood cancer limits the opportunities for its prevention. Early diagnosis and appropriate treatment are key factors, yet differences in survival between European populations of children with cancer suggest inequalities in access to health care across Europe [3].

Whereas inter-regional differences [4] and rising time trends in childhood cancer incidence have been described in Europe [5–7] and the USA [8, 9], other studies have reported no increase in the trend (Canada [10], USA [11]). Both Spain's position in relation to Europe in terms of childhood cancer incidence and the question of whether European trends might also be present in Spain are unclear.

This study, which affords an overview of the patterns and time trends of childhood cancer incidence (1983–2002) and survival (1991–2002) in Spain, was the result of the collaboration of the cancer registries of Albacete (Castile-La Mancha), Asturias, Basque Country, Girona (Catalonia), Granada (Andalusia), Mallorca (Balearic Isles), Murcia, Navarre, Tarragona (Catalonia) and Zaragoza (Aragon), the Comunitat Valenciana Childhood Cancer Registry and the National Childhood Cancer Registry (RNTI-SEHOP).

patients and methods

A total of 11 population-based regional cancer registries participated in the study. Table 1 shows the registries that contributed to the various analyses

*Correspondence to: Rafael Peris-Bonet, Registro Nacional de Tumores Infantiles (RNTI-SEHOP), Facultad de Medicina, Universitat de València, Avda Blasco Ibañez 15, 46010 Valencia, Spain. Tel: +34-963-864951; E-mail: rafael.peris@uv.es

[†]Other members of the Working Group for this study are listed in the Acknowledgements.