

BENCHISTA PROJECT: INTERNATIONAL BENCHMARKING OF CHILDHOOD CANCER SURVIVAL BY TUMOUR STAGE – PRELIMINARY RESULTS

Authors: Kathy Pritchard-Jones¹, Angela Lopez-Cortes¹, Adela Canete³, Lisa L. Hjalgrim³, Zsuzsanna Jakab³, Charles Stiller³, Bernward Zeller³, Fabio Didonè², Laura Botta², Gemma Gatta², and The BENCHISTA Project Working Group.

Affiliations: ¹UCL Great Ormond Street Institute of Child Health, University College London, London, UK. ²Fondazione IRCCS “Istituto Nazionale dei Tumori di Milano”, Milan, Italy. ³BENCHISTA Project Management Team.

Background

Differences in childhood cancer (CC) survival rates across countries might be explained by variation in stage at diagnosis. The BENCHISTA project aims to understand this variation and stimulate the application of the internationally recognised Toronto Guidelines (TG) by population-based cancer registries (PBCRs) to the most common solid paediatric cancers.

Methods

Participating PBCRs collected all cases of six solid tumours – *0-14yrs*: Neuroblastoma (NBL), Medulloblastoma (MBL) Wilms tumour (WT); *0-19yrs*: Rhabdomyosarcoma (RMS), Osteosarcoma (OS) and Ewing sarcoma (ES) – diagnosed between 2014-2017 and applied TG at diagnosis with a 3yr follow-up. Other non-stage prognostic factors (NSPs) were collected to test the PBCRs feasibility to access these at a population-level. Depersonalised, patient-level datasets with staging information according to available clinical sources were submitted to the data controller. On-line trainings and a quality assurance tool were used for standardisation. Survival analyses used standard Kaplan-Meier methods.

Results

67 PBCRs from 24 European countries and Australia, Brazil, Japan and Canada are participating. A project-specific Data Transfer Agreement (DTA) was required for 41 PBCRs to share their datasets according to national/regional data protection regulations and country-specific legislation. By May 2023, 10,504 cases had been received. Completeness of tumour stage for all tumours was 94% (Tier 1) and 88% (Tier 2), highest for WT and lowest for MBL. Overall completeness for other data items was 83% surgery, 86% chemotherapy, 81% radiotherapy, 44% NSPs, 73% relapse and 69% for cause of death. The proportions with metastases at diagnosis were 18% for WT (2,109); 33%(M) + 8%(MS) for NBL (2,845); 30% (M1-M4) for MBL (1,535); 25% for OS (1,500); 33% for ES (1,102) and 26% for RMS (1,413). 3-year overall survival rates were 94% WT; 83% NBL; 75% MBL; 74% OS; 76% ES; 75% RMS.

Discussion and Conclusions

Heterogeneity in data availability and challenges related to data transfer/sharing processes were encountered. Notwithstanding, PBCRs could apply TG at diagnosis and collect some NSPs. The BENCHISTA Project has established a large multi-disciplinary collaboration collating standardised data on stage for comparative analyses of stage distribution and survival by stage for a greater understanding of the underlying reasons for international variations in survival rates.

Word count title: 13

Word count: 350 (Excluding title, authors and affiliations)