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POSTER ABSTRACTS

624.HODGKIN LYMPHOMAS AND T/NK CELL LYMPHOMAS: CLINICAL AND EPIDEMIOLOGICAL

CNS Involvement in Pediatric Hodgkin Lymphoma: A Comprehensive Retrospective Analysis from the Staging, Evaluation and Response Criteria Harmonization (SEARCH) for Childhood, Adolescent and Young Adult Hodgkin Lymphoma (CAYAHL) Group

Reena Pabari, MDMSc,FRCPC[1], Kathleen McCarten, MD FACR[2], Jamie E. Flerlage, MDMS[3], Hollie Lai, MD[4], Christine Mauz-Koerholz, MD[5], Karin Dieckmann, MD[6], Monica Palese[7], Sue Caste, MD[7], Sharon M. Castellino, MD MSc[8], Kara M. Kelly, MD[9], Dietrich Stoevesandt, MD[10], Lars Kurch, MD[11]

[1] The Hospital for Sick Children, Toronto, Canada
[2] Rhode Island Hospital, Providence, RI
[3] Department of Oncology, St. Jude Children's Research Hospital, Memphis, TN
[4] Children's Hospital of Orange County, Orange, CA
[5] Department of Pediatric Hematology-Oncology, Martin-Luther University of Halle, Giessen, Germany
[6] Medical University of Vienna, Vienna, Austria
[7] St Jude Children's Research Hospital, Memphis, TN
[8] Department of Pediatrics, Emory University School of Medicine, Atlanta, GA
[9] Roswell Park Comprehensive Cancer Center, Buffalo, NY
[10] University Hospital Halle, Halle, Germany
[11] University Hospital Leipzig, Leipzig, DEU

Introduction

Hodgkin lymphoma (HL) accounts for approximately 7% of childhood cancer, most frequent in adolescents and young adults. In contrast to non-Hodgkin lymphoma (NHL), central nervous system (CNS) involvement at the time of diagnosis with HL is rare and poorly understood. Information regarding the clinical presentation, management, response to treatment and outcome of patients who exhibit this finding is limited to case reports or small series. We sought to describe CNS involvement at the time of diagnosis with pediatric HL by performing a retrospective analysis of 3 large international clinical trials.

Methods

Patients with CNS involvement were identified from the imaging databases of the COG trial AHOD1331 (NCT02166463) and EuroNet trials PHL-C1 (NCT00433459, EudraCT 2006-000995-33) and PHL-C2 (NCT02684708, EudraCT 2012-004053-88). Imaging was reviewed collaboratively by COG and Euronet radiologists and nuclear medicine physicians with expertise in HL, with input from radiation oncologists and pediatric oncologists. All identified cases of CNS involvement had morphologic (CT) and metabolic (FDG-PET) imaging prior to initiation of therapy, as well as disease response assessment after 2 cycles of therapy. Variables evaluated included: age, sex, Ann Arbor stage, histology, symptoms at the time of presentation (pain, neurologic symptoms), corticosteroid administration prior to FDG-PET scan, number and location of CNS lesions, tissue of origin of the CNS lesion, anatomic description of the involvement of the CNS lesion, number and location of E-lesions, whether emergency irradiation or an operative procedure were performed at diagnosis, FDG tracer uptake at the time of initial staging, response of the CNS lesions after 2 cycles of chemotherapy, whether relapse occurred and in which location. CNS involvement was defined in 2 ways: (1) lesions originating within the CNS parenchyma and (2) lesions extending into the CNS.

Results

45 patients with 55 CNS lesions were identified from a combined cohort of 5569 patients with a new diagnosis of HL. 9 patients presented with pain and 4 with neurologic symptoms, however information regarding clinical symptoms was not available for 34/45 patients. Symptoms corresponded to the location of the CNS lesion. All identified lesions extended into the CNS from surrounding tissue, none originated within the CNS parenchyma. 82.2% of patients had a single lesion extending into the CNS, most commonly through the neural foramina into the thoracic spine (45.5%), sacrum (23.6%) or lumbar spine (21.8%). Lesions originated from adjacent bone (45%) or soft tissue (40%). 89% of patients with CNS lesions had stage IV HL, and 68.8% had extranodal (non-CNS) disease. 54.8% of lesions displaced the spinal cord, but none infiltrated the spinal cord itself. After 2

cycles of chemotherapy, 67.3% of CNS lesions had a >75% reduction in size or complete resolution, and 32.7% of CNS lesions decreased in volume by 50-75%. A residual mass was present for 74% of lesions involving the neural foramina after 2 cycles of chemotherapy. 89.1% of lesions were PET negative at interim response assessment (IRA). 2 CNS lesions were associated with relapse at the CNS site, these were PET negative at IRA. 13 lesions received irradiation, none of these were sites of subsequent relapse.

Conclusions

This large, combined cohort of intermediate- and high-risk pediatric patients enrolled on clinical trials from 2007 to 2021 confirms the rarity of CNS involvement at the time of diagnosis with HL, with an overall incidence of 0.8%. Importantly, CNS lesions extended from adjacent tissue and did not originate within the CNS itself. These lesions never directly infiltrated the brain parenchyma or spinal cord. They were highly metabolically active at diagnosis, and demonstrated an excellent metabolic and morphologic response to the first 2 cycles of chemotherapy. Patients with CNS involvement had a 2-fold greater incidence of extranodal disease than previously reported cohorts. In summary, this retrospective study provides key information about CNS involvement in pediatric HL at the time of diagnosis, contributing to our understanding of this rare, yet important, clinical presentation.

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