

Epstein Barr Virus in children and adolescents with classical Hodgkin Lymphoma: analysis of a cohort of 299 patients

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Introduction

To analyse the Epstein Barr Virus (EBV) part in biological and clinical characteristics of patients treated for a classical Hodgkin lymphoma (cHL) in France.

Methods

Biopathological datas were centrally reviewed in 299 patients with cHL. Patients were treated in or according to the Euronet PHL-C1 trial between November 2008 to February 2013.

Results

Median age at diagnosis was 14 [3-18], F/M ratio was 0,84; 0,47 between 3 to 10 years, and 0,9 from 11 to 18. CHL subtypes were nodular sclerosis (cHL NS) 265/299 (88,6%), mixed cellularity (cHL MC) 22/299 (7,4%), lymphocyte rich 2/299 (0,7%) and 10/299 (3,3%) were unclassified.

68/299 (22,7%) present a cHL EBV+, significantly more frequent in 3-10 years patients n=17/34 (50%), than in >11years n=51/265 (19,2%) p<0,001, and in cHL MC subtype n=15/22 (68,2%), than in cHL NS subtype n=49/265 (18,5%) p<0,001.

EBV serology was recorded in 100/299 (33,4%) cases. Anti VCA-IgG were positive in 70/100 (70%) cases, anti EBNA-IgG were positive in 61/100 (61%) cases, and anti VCA-IgM were positive in 5/100 (5%) cases. In EBV+ cases, 22/23 (95,7%) were VCA-IgG+ (p=0,002), 19/23 (82,6%) were EBNA-IgG+ (p=0,01), and 2/23 (8,7%) were VCA-IgM+ (p=0,3). EBV PCR was recorded in 108/299 (36,1%) cases, and was positive in 22/108 (20,4%). In EBV+ cases, 13/28 (46,4%) had a PCR+ (p<0,001). No significant difference in sex distribution (p=0,12) and staging disease (p=0,84) was present in cHL EBV+/- .

Immunostaining was : 284/284 (100%) CD30+, (no data for 15 patients); CD15 was + 242/284 (85,2%) cases and 55/62 (88,7%) in cHL EBV+ (p=0,38).

CD20 was + 62/287 cases (21,6%) and 15/63 (23,8%) in cHL EBV+ (p=0,23). PAX5 was + 211/255 (82,7%) with cHL EBV+ 44/52 (84,6%) (p=0,69).

Overall, no significant differences between immunostaining in cHL EBV+ and negative distribution has been highlighted. No significant difference in overall survival (p=0,35) and event free survival (p=0,9) has been raised between EBV positive and negative population.

Conclusion

In this cohort of 299 French children and adolescents with cHL, cHL MC subtype is present in only 12.4%. EBV cHL represent 22,7% of our cohort and is significantly associated with young age and cHL MC, without

survival or relapse impact. Although EBV in cHL is well-known, EBV immune role in HL pathology need further research.