Diagnostic Pathology

Oral presentation

Diagnosis of Burkitt's lymphoma in due time: a practical approach

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Aims

The quick diagnosis of Burkitt's lymphoma (BL) and its clear-cut differentiation from diffuse large B-cell lymphoma (DLBCL) is of great clinical importance since treatment for these two disease entities differ markedly and should promptly be initiated in BL. However, these two tumours are difficult to distinguish using the current WHO classification, particularly in regard to BL variants, i.e., BL with plasmacytoid differentiation and atypical Burkitt's/Burkitt's-like lymphomas.

Methods

We studied 39 cases of highly proliferative blastic B-cell lymphoma (HPBCL) to establish a practical differential-diagnostic algorithm. Characteristics set for BL were a typical morphology, a mature B-cell phenotype of $CD10^+$, $Bcl\text{-}6^+$ and $Bcl\text{-}2^-$ tumour cells, a proliferation rate of >95%, and the presence of *C-MYC* rearrangements in the absence of *t(14;18)(q32;q21)*. All cases were selectively negative for cyclin D-1, CD5, CD23, LMP-EBV, CD34 and TdT, and there were no cases of endemic or immunodeficiency-associated Burkitt's lymphoma.

Results

Altogether the set BL characteristics were found in only 5/39 cases (12.8%), whereas the majority of tumours revealed mosaic features (87.2%). In a second attempt, we followed a pragmatic stepwise approach for a classification algorithm that includes the assessment of *C-MYC* status to stratify HPBCL into four predefined diagnostic categories (DC), namely DC I (5/39, 12.8%): "classical BL", corresponding to the classical variant of sporadic BL in the WHO classification; DC II (11/39, 28.2%): "atypical BL", corresponding to the atypical Burkitt's/Burkitt's-like variants of sporadic BL in the WHO classification; DC III (9/39, 23.1%): "*C-MYC*$^+$ DLBCL"; and DC IV (14/39, 35.9%): "*C-MYC*$^-$ HPBCL".

Conclusion

This proposal may serve as a robust and objective operational basis for therapeutic decisions for HPBCL within one week and is applicable to be evaluated for its prognostic relevance in prospective clinical trials.