Abstract

Distinguishing Burkitt lymphoma (BL) from B cell lymphoma, unclassifiable with features intermediate between diffuse large B-cell lymphoma (DLBCL) and BL (DLBCL/BL), and DLBCL is challenging. We propose an immunohistochemistry and fluorescent in situ hybridization (FISH) based scoring system that is employed in three phases - Phase 1 (morphology with CD10 and BCL2 immunostains), Phase 2 (CD38, CD44 and Ki-67 immunostains) and Phase 3 (FISH on paraffin sections for MYC, BCL2, BCL6 and immunoglobulin family genes). The system was evaluated on 252 aggressive B-cell lymphomas from Europe and from sub-Saharan Africa. Using the algorithm, we determined a specific diagnosis of BL or not-BL in 82%, 92% and 95% cases at Phases 1, 2 and 3, respectively. In 3·4% cases, the algorithm was not completely applicable due to technical reasons. Overall, this approach led to a specific diagnosis of BL in 122 cases and to a specific diagnosis of either DLBCL   or DLBCL/BL in 94% of cases that were not diagnosed as BL. We also evaluated the scoring system on 27 cases of BL confirmed on gene expression/microRNA expression profiling. Phase 1 of our scoring system led to a diagnosis of BL in 100% of these cases