Chemotherapy Treatments for Burkitt Lymphoma: Systematic Review of Interventional Studies

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OBJECTIVES

To evaluate the efficacy and safety of chemotherapy protocols for patients with Burkitt lymphoma (BL) considering the most up-to-date version of the World Health Organization Classification of Tumors of Haematopoietic and Lymphoid Tissues (2008 or later).

METHODS

A systematic review of interventional studies was performed following the recommendations of the Cochrane Collaboration and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (CRD42019131566). Searches limited to studies published after 2008 were conducted in PubMed, Scopus, and Web of Science (Jan-2020). Studies' methodological quality was assessed with Newcastle-Ottawa scale. Qualitative and exploratory analyses were performed considering efficacy as overall survival (OS) and progression-free survival (PFS), and safety (adverse events).

RESULTS

From the 1,358 identified studies, nine non-randomized trials (n=544 patients) were included (see Figure 1). BL epidemiological variants were: sporadic BL (sBL) (44.5%), endemic BL (eBL) (47.2%) and immunodeficiency-associated BL (iBL) (8.3%). Four groups of chemotherapy protocols were identified: CODOX-M/IVAC (n=4), EPOCH (n=1), BFM (n=1) and simplified schemes (e.g. without rituximab) used in Africa (n=3). Most studies had moderated methodological quality with limitations on design and lack of standardized reporting. For adults with sBL, best results were obtained with DA-EPOCH-R [OS-7 years: 100% (95%CI, 82-100)], HDR + LD with CODOX-M/IVAC (OS-2 years: 84%) and RD-CODOX-M/IVAC protocols [PFS-4 years: 92% (95%CI, 77-100)]. For pediatric patients with sBL, BFM-NHL-90-like protocol showed promising results (OS-3 years: 90%). For iBL, the SC-EPOCH-RR was found to be a good therapeutic option [OS-6 years: 90% (95%CI, 60-98)], while the Malawi 2012-2014 protocol [OS-1 year: 73% (95%CI, 61-85)] could be used for eBL (see Figure 2). Hematological adverse events were commonly reported.

CONCLUSIONS

According to the BL epidemiological variant, different chemotherapy protocols should be recommended. As the classification of the disease is important to guide treatment, peer reviewers should ensure that new trials are published using the most recent international criteria.

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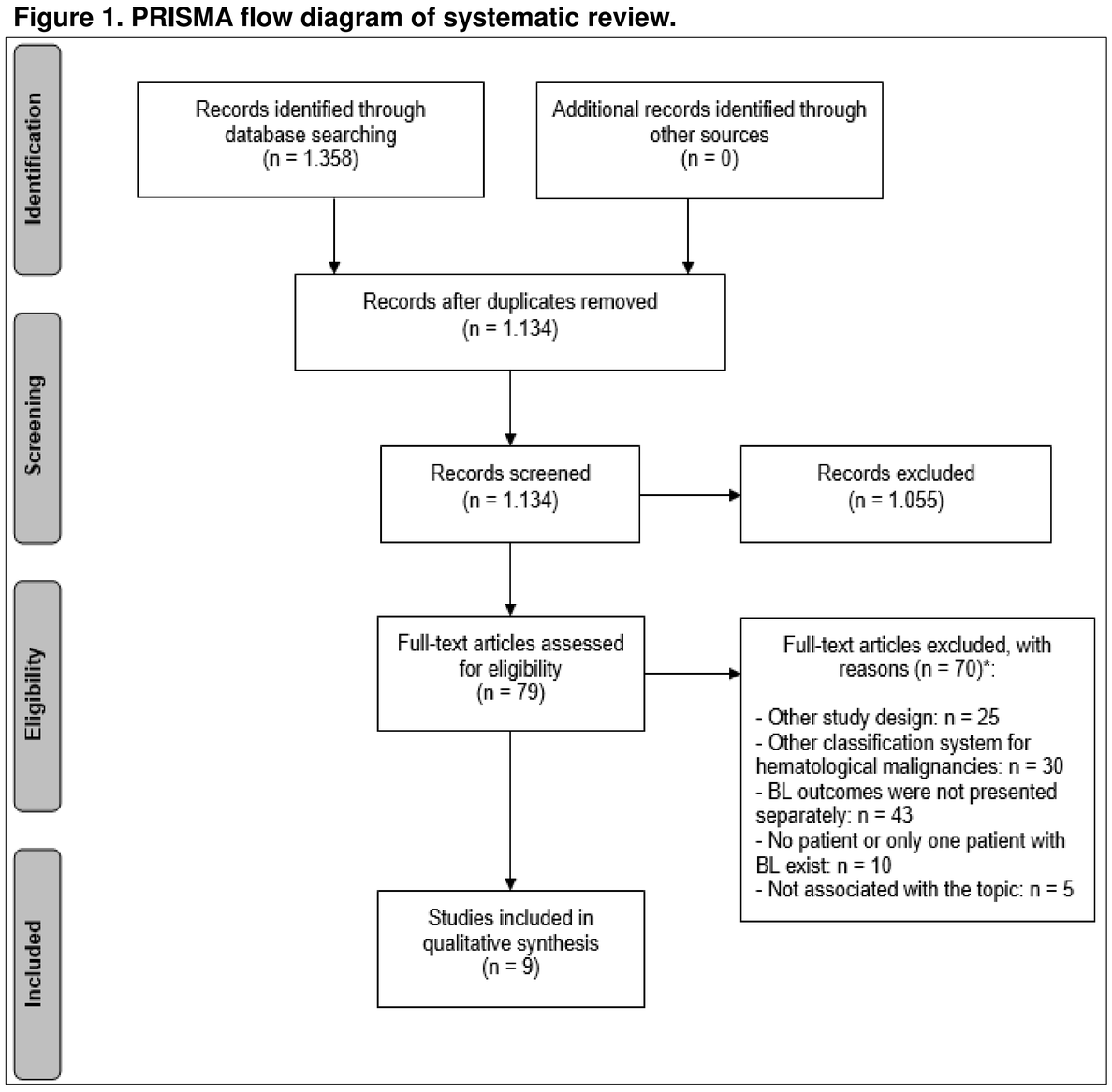
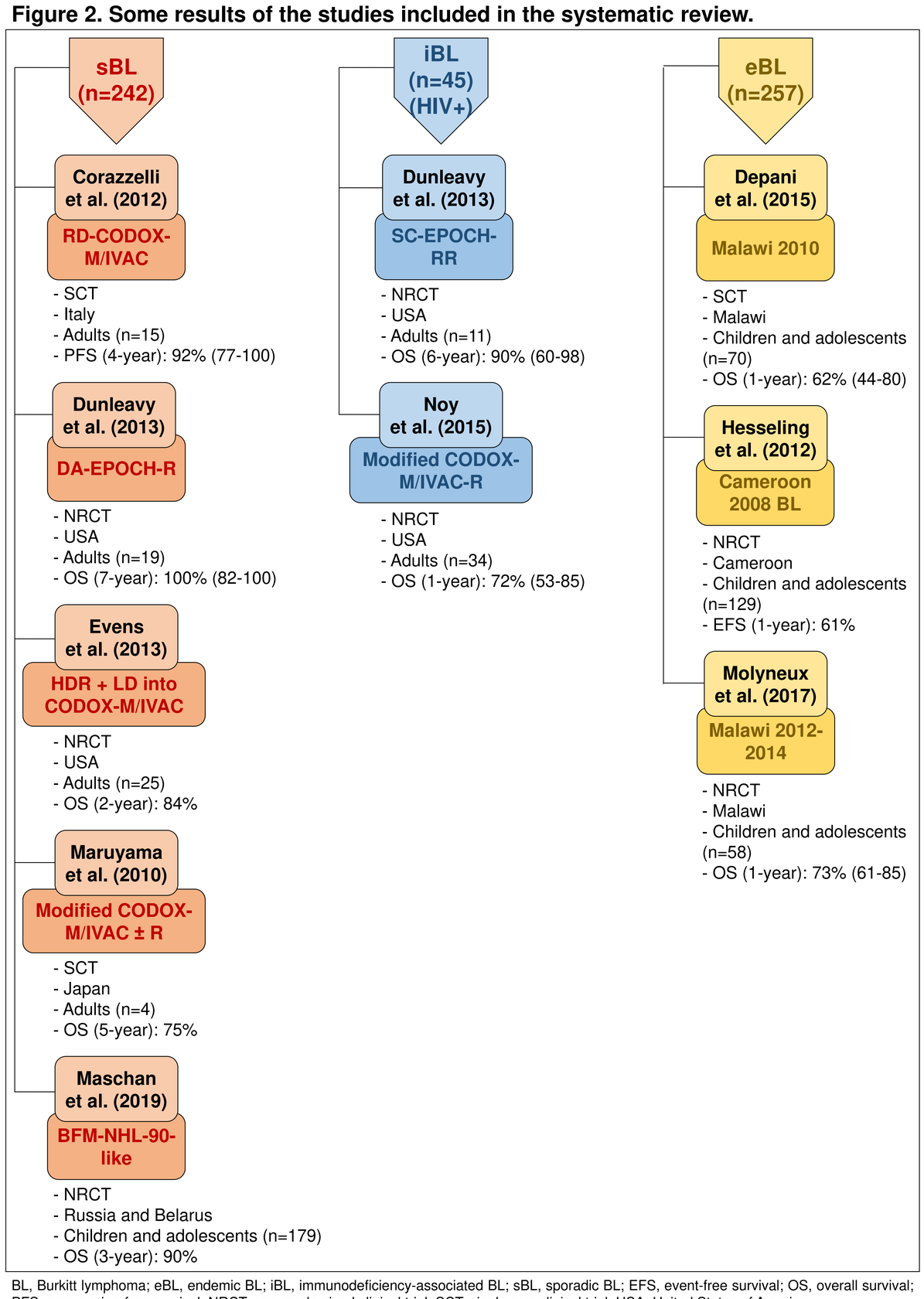
Figure 1. PRISMA flow diagram of systematic review.



BL, Burkitt lymphoma; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.
*Excluded studies have more than one reason for exclusion.

Figure 2. Some results of the studies included in the systematic review.



BL, Burkitt lymphoma; eBL, endemic BL; iBL, immunodeficiency-associated BL; sBL, sporadic BL; EFS, event-free survival; OS, overall survival; PFS, progression-free survival; NRCT, non-randomized clinical trial; SCT, single-arm clinical trial; USA, United States of America.