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Plasma Epstein-Barr Virus (EBV) DNA as a biomarker for diagnosis of Syrian EBV-positive Burkitt's Lymphoma

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Epstein-Barr Virus -positive Burkitt's Lymphoma is defined as the presence of Epstein-Barr virus (EBV) in tumor cells, the standard way to detect (EBV) in Burkitt's Lymphoma is in situ hybridization (ISH) of EBV-encoded small RNA (EBERs) in tumor cells. The present study aimed to evaluate plasma Epstein-Barr virus (EBV) DNA as a noninvasive biomarker for diagnosis and prognosis of EBV-positive Burkitt's lymphoma. The study included 40 newly diagnosed patients with Burkitt's lymphoma, ranging in age from 4 to 60 years, and 55 sex and age-matched controls. (40) Formalin-fixed paraffin embedded blocks of Burkitt's lymphoma tissue samples were used to investigate the EBV by in situ hybridization detection of the EBERs. Plasma EBV DNA was quantified by real-time quantitative polymerase chain reaction (PCR) for all Burkitt lymphoma patients prior to therapy and for control. The results showed that (22/40, 55%) of Burkitt lymphoma were positive for histological EBER, whereas plasma EBV DNA was detectable (range from 1.2×104 to 4.7×106 copies/mL) in all EBV-positive Burkitt lymphoma samples (22/22). EBV DNA was undetectable in all cases of EBV-negative Burkitt lymphomas (18/18) and all healthy control (55/55). It is worth mentioning that our results demonstrated that the EBV DNA load was significantly high in the EBV-positive BL patients suffering poor prognostic state. In conclusion: Plasma EBV-DNA can be used as a noninvasive biomarker for diagnosis and prognosis of EBV-positive Burkitt's lymphoma.

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