Antitumor effect of berberine against primary effusion lymphoma via inhibition of NF-κB pathway.


Source
Division of Hematopoiesis, Center for AIDS Research, Kumamoto University, Kumamoto.

Abstract

Primary effusion lymphoma (PEL) is an infrequent and distinct entity among the aggressive non-Hodgkin B cell lymphomas that occurs predominantly in patients with advanced AIDS. It shows serous lymphomatous effusion in body cavities, and is resistant to conventional chemotherapy with a poor prognosis. Thus, the optimal treatment for PEL is not well defined and there is a need for novel agents. PEL has been recognized as the tumor caused by Kaposi sarcoma-associated herpes virus/human herpes virus-8 (KSHV/HHV-8), and nuclear factor (NF)-κB activation plays a critical role in the survival and growth of PEL cells. In this study, we assessed the antitumor effect of berberine, a naturally occurring isoquinoline alkaloid, on this pathway. The methylthiotetrazole assay showed that cell proliferation in the PEL cell lines was inhibited by berberine. Berberine also induced caspase-dependent apoptosis and suppressed NF-κB activity by inhibiting IkB kinase (IKK) phosphorylation, IkB phosphorylation and IkB degradation, upstream targets of the NF-κB pathway, in PEL cells. In a xenograft mouse model that showed ascites and diffuse organ invasion of PEL cells, treatment with berberine inhibited the growth and invasion of PEL cells significantly compared with untreated mice. These results show that the suppression of NF-κB is a molecular target for treating PEL, and berberine is a potential antitumor agent for PEL. (Cancer Sci 2012; 103: 775-781).


PMID: 22320346