CANCER RESEARCH

Abstract PO-047: Anti-proliferative effect of cannabidiol (CBD) against B and T-cell lymphoma

Saba Omer, Dawn Boothe, Mohammed Mansour, Muralikrishnan Dhanasekaran, and Satyanarayana Pondugula

DOI: 10.1158/1538-7445.TUMHET2020-PO-047 Published November 2020 Check for updates

Abstracts: AACR Virtual Special Conference on Tumor Heterogeneity: From Single Cells to Clinical Impact; September 17-18, 2020

Abstract

In the last two decades, Cannabinoids have been studied extensively for its potential use in various fields of medicine including oncology. Today some of the cannabinoids are FDA approved for the treatment of chemotherapy-induced side effects in cancer treatment however, studies are showing their effect against tumor growth as well. Aggressive B cell lymphoma or Non-Hodgkin lymphoma (NHL) is the fifth leading cause of human cancer death and is the second fastest-growing cancer with regard to mortality in people as 30% of patients develop resistance against chemotherapy. For this reason, it is essential to develop novel strategies to improve the outcome of patients suffering from aggressive or therapy-resistant lymphoma. The purpose of this study was to demonstrate the antitumor effects of cannabinoids in B cell lymphoma using canine as a model due to striking similarities b/w canine and human B cell lymphoma in histology, biology and gene expression. For this study, Canine B cell lymphoma cell lines 1771 and CLBL1 were cultured in RPMI. Expression of cannabinoid receptors studied using qPCR. Based on receptor expression cells were treated with receptor agonists (AEA, 2AG, CBD, THC, WIN and HU-210,) and antagonists (S16 and S28). Cell viability assessed using MTT assay. Biochemical analysis performed using spectrofluorometry to evaluate apoptotic makers involved in inducing cell death. Data was analyzed using ordinary one way ANOVA on Prism software. All B cell lymphoma cell lines showed positive expression of CB1 and CB2 receptors. Cell viability assay demonstrated a dose-dependent decrease in cell proliferation with all cannabinoid receptor agonists used except for 2AG. Biochemical analysis showed a decrease in nitrite and caspase activity in treated cells as compared to control untreated cells. Our results suggest that cannabinoids have an anti-proliferative and apoptotic effect on canine lymphoma cells and it can be developed as a potential anti-cancer agent for the treatment of canine and human B cell lymphoma.

Citation Format: Saba Omer, Dawn Boothe, Mohammed Mansour, Muralikrishnan Dhanasekaran, Satyanarayana Pondugula. Anti-proliferative effect of cannabidiol (CBD) against B and T-cell lymphoma [abstract]. In: Proceedings of the AACR Virtual Special Conference on Tumor Heterogeneity: From Single Cells to Clinical Impact; 2020 Sep 17-18. Philadelphia (PA): AACR; Cancer Res 2020;80(21 Suppl):Abstract nr PO-047.

Previous

Back to top

November 2020
Volume 80, Issue 21
Supplement
Table of Contents

Search this issue

Sign up for alerts

Request Permissions Share
Article Alerts Tweet
Email Article Like 21
Citation Tools

Jump to section
Article
Info & Metrics

Related Articles

No related articles found.

Google Scholar

Cited By...

More in this TOC Section

Cancer Research Online ISSN: 1538-7445
Cancer Research Print ISSN: 0008-5472
Journal of Cancer Research ISSN: 0099-7013
American Journal of Cancer ISSN: 0099-7374