

Immunomodulatory effect of statins on Regulatory T Lymphocytes in human colorectal cancer is determined by the stage of disease

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Abstract: Colorectal cancer (CRC) is a public health problem worldwide and in Jordan. Statins are cholesterol lowering agents. Beyond their effects, statins use has been reported to reduced risk of several malignances, including CRC. This study aimed to assess the effect of statins on CRC by studying cellular infiltration of Regulatory T Lymphocytes (Tregs) into CRC tissues and their effect on Transforming growth factor beta 1 (TGF- β 1) level and on angiogenesis. Fourty seven specimens (25 statins users vs. 22 non-users) were used. Immunohistochemistry was performed to study Tregs infiltration using their marker, fork head transcription factor, and angiogenesis using CD31 as a marker. TGF- β 1 levels were measured using ELISA. Results revealed that statins use was associated with more Tregs infiltration, less angiogenesis but no difference in TGF- β 1 content in tumor tissue. When results were further stratified according to stage of disease, more Tregs infiltration was significantly noticed in advanced disease but not in early disease. In addition, more angiogenesis inhibition was noticed in early disease but not in advanced disease. Same stage-dependence wasn't noticed with TGF- β 1 expression. In early disease, reduction of angiogenesis mediated by statins might lead to reduction of tumor aggressiveness. On the other hand, Tregs infiltration into tumor mediated by statins might reduce cancer aggressiveness in advanced disease. These results suggest that statins might be used in the treatment of CRC.