The role of choline in prostate cancer.

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Abstract

Choline is an essential nutrient that is necessary for cell membrane synthesis and phospholipid metabolism and functions as an important methyl donor. Multiple roles for choline in cancer development have been suggested. Choline can affect DNA methylation and lead to a disruption of DNA repair. It can also modify cell signaling that is mediated by intermediary phospholipid metabolites, and it can support the synthesis of cell membranes and thus support cell proliferation. A higher intake or status of choline in plasma and tissues has been related to higher cancer risks. Prostate cancer shows elevated levels of choline uptake and levels of certain choline metabolites. Choline metabolites can be used as potential prognostic biomarkers for the management of prostate cancer patients. Targeting certain enzymes, which are related to choline metabolism, provides promising therapeutic opportunities for tumor growth arrest. This review summarizes the potential role of choline metabolism in cancer, especially in prostate cancer.

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