Digoxin inhibits blood vessel density and HIF-1α expression in castration-resistant C4-2 xenograft prostate tumors.


Source

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Abstract

PURPOSE:

Recent studies suggest a potential application for digoxin in the prevention and/or treatment of prostate cancer. However, the effect of digoxin on androgen receptor (AR)-positive prostate tumor in vivo is not clear. This study is designed to determine if digoxin can inhibit AR-positive xenograft prostate tumors.

MATERIALS AND METHODS:

Athyrmic male nude mice were utilized to establish subcutaneous C4-2 castration-resistant prostate tumors. The animals were castrated and then treated with daily intraperitoneal (i.p.) injection of digoxin at 2 mg/kg along with vehicle controls for 7 consecutive days. Tumor growth was determined by measuring tumor volume changes, blood vessel density by immunostaining of CD31, and cell proliferation by BrdU labeling. The expression of HIF-1α in C4-2 tumors was measured by Western blot and real-time RT-PCR.

RESULTS:

Digoxin inhibited blood vessel density about fourfold and down-regulated HIF-1α expression at both mRNA and protein levels. However, digoxin did not inhibit C4-2 tumor growth.

CONCLUSIONS:

Digoxin is a potent inhibitor of HIF-1α signaling pathway and blood vessel formation in C4-2 castration-resistant prostate tumors.