



Chemopreventive Effect of Baicalin against Diethylnitrosamine Induced Hepatocellular Carcinoma via Inhibition of Angiogenesis, Hypoxia and Metastatic Markers

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SUMMARY. In this study, we scrutinize the chemo-protective effect of baicalin and explore the mechanism. DEN (200 mg/kg) administration for HCC induction and baicalin (5, 10, and 20 mg/kg) treatment given to the rats for 20 weeks. Hepatic tissue microscopically evaluated. Hepatic tumor markers, hepatic, antioxidant and inflammatory parameters were examined. Baicalin significantly reduced hepatic nodules and tumor incidence at dose dependent manner. Baicalin significantly ($p < 0.001$) declined the level of hepatic tumors parameters such as CEA and AFP and hepatic marker includes ALP, AST, and ALT; phase I and II enzymes and endogenous antioxidant enzymes. Baicalin significantly reduced inflammatory parameter such as NF- κ B and cytokines includes TNF- α , IL-1 β , and IL-6. Baicalin treatment showed the suppression of HIF-1 α , VEGF, CD31 expression and increase the HOX expression and increase the MMP-2 and MMP-9 enzymatic activity. Baicalin protects from hepatic cancer via altered hepatic tumor markers, inflammatory, hepatic metastasis, angiogenic and hypoxic markers.

RESUMEN. En este estudio, analizamos el efecto quimioprotector de la baicalina y exploramos el mecanismo. Se administró DEN (200 mg/kg) para la inducción de HCC y tratamiento con baicalina (5, 10 y 20 mg/kg) administrado a ratas durante 20 semanas. El tejido hepático fu evaluado microscópicamente. Se examinaron marcadores tumorales hepáticos, parámetros hepáticos, antioxidantes e inflamatorios. La baicalina redujo significativamente los nódulos hepáticos y la incidencia de tumores en forma dosis dependiente. La baicalina disminuyó significativamente ($p < 0,001$) el nivel de parámetros de tumores hepáticos como CEA y AFP y el marcador hepático incluye ALP, AST y ALT; enzimas de fase I y II y enzimas antioxidantes endógenas. La baicalina redujo significativamente los parámetros inflamatorios como NF- κ B y las citocinas incluyen TNF- α , IL-1 β e IL-6. El tratamiento con baicalina mostró la supresión de la expresión de HIF-1 α , VEGF, CD31, aumentó la expresión de HOX y la actividad enzimática de MMP-2 y MMP-9. La baicalina protege del cáncer hepático a través de marcadores tumorales hepáticos alterados, inflamación, metástasis hepática, marcadores angiogénicos e hipóxicos.

KEY WORDS: angiogenic, baicalin, diethylnitramine, hepatic cancer, hypoxic, metastasis.

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