

Anti-proliferative and anti-apoptotic potential effects of epigallocatechin-3-gallate and/or metformin on hepatocellular carcinoma cells: in vitro study

Article 2

Abstract The effects of epigallocatechin-3-gallate (EGCG) and metformin single treatment have been tested against hepatocellular carcinoma (HCC). This study aimed to assess the combination effects of EGCG and metformin on proliferation and apoptosis of HepG2 cells and identified new potential molecular targets. The effect of EGCG and metformin against cell proliferation in HepG2 was determined using MTT assay. Reverse transcription polymerase chain reaction was applied to examine the gene expression of cyclin D1, lncRNA-AF085935, caspase-3, survivin and VEGF. The level of protein expression of glypican-3 was assessed by western blot. In HepG2 cells, EGCG and metformin combination treatment exhibited high significant effect against tumor proliferation. It significantly reduced cyclin D1, lncRNA-AF085935, glypican-3 and promoted apoptosis through increasing caspase3 and decreasing survivin compared to control cells. Moreover, EGCG and metformin treated cells showed decreased expression levels of VEGF. Our study provided new insights of the anticarcinogenic effects of EGCG and metformin on HCC through their effects on glypican-3 and lncRNA-AF085935