عنوان مقاله:

In vivo study of anticancer activity of ginsenoside Rh۲-containing arginine-reduced graphene in a mouse model of breast cancer

محل انتشار:

مجله علوم پایه پزشکی ایران, دوره 25, شماره 12 (سال: 1401)

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خلاصه مقاله:

Objective(s): This study aims to evaluate the in vivo anticancer activity of arginine-reduced graphene (Gr-Arg) and ginsenoside Rh۲-containing arginine-reduced graphene (Gr-Arg-Rh۲). Materials and Methods: Thirty-two mice with breast cancer were divided into four groups and treated every three days for ۳۲ days: Group ۱, PBS, Group ۲, Rh۲, Group ۳, Gr-Arg, and Group ۴, Gr-Arg-Rh۲. The tumor size and weight, gene expression (IL۱۰, INF-γ, TGFβ, and FOXP۳), and pathological properties of the tumor and normal tissues were assessed. Results: Results showed a significant decrease in TGFβ expression for all drug treatment groups compared with the controls (P=۰.۰۴). There was no significant difference among the groups regarding IL۱۰ and FOXP۳ gene expression profiles (P>۰.۰۵). Gr-Arg-Rh۲ significantly inhibited tumor growth (size and weight) compared with Rh۲ and control groups. The highest survival rate and the highest percentage of tumor necrosis (۸۷.۵%) belonged to the Gr-Arg-Rh۲ group. Lungs showed metastasis in the control group. No metastasis was observed in the Gr-Arg-Rh۲ group. Gr-Arg-Rh۲ showed partial degeneration of hepatocytes and acute cell infiltration in the portal spaces and around the central vein. The Gr-Arg group experienced a moderate infiltration of acute cells into the port spaces and around the central vein. The Rh۲ group also showed a mild infiltration of acute and chronic cells in portal spaces. Conclusion: Based on the results, Gr-Arg-Rh۲

can reduce tumor size, weight, and growth, TGF-β gene expression, and increase tumor necrosis and survival time in mice with cancer.

کلمات کلیدی:
Arginine, Breast Cancer, Genes, Ginsenoside Rh۲, Graphene, Tumor