Scutelaria barbata – efeito antiproliferativo e imunomodulador em células do hepatocarcinoma H22 – 4 trabalhos

[Antitumor and immune-modulating effects of Scutellaria barbata extract in mice bearing hepatocarcinoma H22 cells-derived tumor].

[Article in Chinese]

Source
Department of Oncology, Second Hospital of Xi'an Jiaotong University, Xi'an 710004, China. dzj0911@126.com

Abstract

OBJECTIVE:
To investigate the effects of Scutellaria barbata extract (ESB) in suppressing tumor growth and modulating the immune functions in mice bearing tumors derived from hepatocarcinoma H22 cells.

METHODS:
Fifty mice inoculated subcutaneously with H22 cells were equally divided into the model group, high-, moderate- and low-dose ESB groups, and 5-Fu group, with corresponding treatments for 10 days. Another 10 mice with only saline injection served as the normal control group. The body weight, tumor mass, thymus index and spleen index of the mice were measured, and the lymphocyte proliferation activity, NK cell activity and interleukin-2 (IL-2) production by the splenocytes were detected.

RESULTS:
Moderate- and high-dose ESB significantly suppressed the tumor growth with tumor inhibition rate of 28.68% and 36.98%, respectively. ESB treatment at moderate and high doses significantly increased the thymus index and spleen index (P < 0.01), which were decreased significantly in 5-Fu group. The lymphocyte proliferation activity, NK cell activity and IL-2 production by the splenocytes were significantly lower in the model group than in the normal group (P < 0.05). Compared with the model group, ESB at the high dose obviously increased the three indexes above mentioned. The NK cell activity was also significantly improved in moderate-dose ESB group (P < 0.05).

CONCLUSION:
ESB can suppress the growth of H22 implant tumor and enhance the immune function of the tumor-bearing mice.

PMID:18971184
[Effects of Scutellaria Barbata drug-containing serum on apoptosis and mitochondrial transmembrane potential of hepatoma H22 cells].

[Article in Chinese]

Source
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Abstract

OBJECTIVE:
To investigate the effects of serum containing Scutellaria Barbata extract (ESB) on apoptosis rate and mitochondrial transmembrane potential (MTP) of liver cancer cell line H22 from mice in vitro.

METHODS:
H22 cells were cultured in vitro and divided into 5 groups: blank control group, low-dose ESB group, medium-dose ESB group, high-dose ESB group and fluorouracil (5-Fu) group. Methyl thiazolyl tetrazolium assay was utilized to determine the proliferation rates of H22 cells. Cellular morphology was observed under a transmission electron microscope (EM). The rhodamine 123 was used as a fluorescence probe to label the H22 cells, and the fluorescence intensities were observed with a laser scanning confocal microscope. The fluorescence intensity of H22 cells indicated the MTP of H22 cells.

RESULTS:
The inhibition of serum containing ESB on the proliferation of H22 cells in vitro was observed in a time-dependent manner. The typical morphological changes of apoptosis were observed after incubation with ESB-containing serum in high dose for 48h. The apoptosis rates of blank control group, 5-Fu group, low-dose ESB group, medium-dose ESB group and high-dose ESB group were (0.51±0.32)%, (11.26±2.97)%, (1.07±0.46)%, (3.15±1.12)%, (7.83±2.25)%, respectively. ESB could reduce the MTP of H22 cells from mice as compared with the untreated group. The MTPs of the blank control group, 5-Fu group, and low-, medium- and high-dose ESB groups were (245.45±67.37), (127.42±41.35), (213.68±65.52), (186.34±56.37) and (142.65±39.44) respectively, which were negatively correlated with the apoptosis rates.

CONCLUSION:
ESB-containing serum effectively induces apoptosis, which may be related to the decrease of MTP in H22 cells.

PMID: 18664351
Anti-proliferative and apoptosis-inducing activity of Scutellaria barbata containing serum on mouse's hepatoma H22 cells.

[Article in Chinese]

Source
Department of Oncology, Second Hospital of Xi'an Jiaotong University, Xi'an 710004, China. dzj0911@126.com

Abstract

OBJECTIVE:
To investigate the effects of Scutellaria barbata extract (ESB) on suppressing proliferation and inducing apoptosis of mouse hepatoma H22 cells.

METHODS:
H22 cells cultured in vitro were divided into 5 groups: blank control group, ESB in high, medium, low dose groups and 5-Fu group. H22 cells were cultured in media with serum containing different concentrations of ESB and blank serum. The proliferation of H22 cells was determined by microculture tetrazolium (MTT) assay. Fluorescence microscopy was utilized to observe the apoptosis of H22 cells by staining with Hoechst 33258. The cell cycle and apoptosis were analyzed by flow cytometry (FCM).

RESULTS:
The inhibition of serum containing ESB on the proliferation of H22 cells in vitro was observed in a dose and time dependent manner. The typical morphological changes of apoptosis were observed after incubation with ESB-containing serum in high dose for 48 hours. Among the various phases of cell cycle, the percentage of cells in S phase decreased significantly, while the percentage of cells in G1 phase increased. Drug-containing serum showed positive effect on cell apoptosis. The apoptosis rate of blank control group, ESB in low, medium, high dose groups and 5-Fu group were 0.51%, 1.07%, 3.15%, 7.83%, 11.26%, respectively.

CONCLUSION:
ESB containing serum can inhibit proliferation and induce apoptosis of H22 cells in vitro.

PMID:18661828

Scutellaria barbata extract enhances efficacy and reduces toxicity of chemotherapy in hepatoma H22-bearing mice.

[Article in Chinese]
Abstract

OBJECTIVE:

To study the assistant effect of Scutellaria barbata extract (ESB) in 5-fluorouracil (5-FU) chemotherapy.

METHODS:

A mouse model of transplanted hepatoma H22 was used in this study to evaluate the synergic and attenuating effects of ESB in chemotherapy. Tumor inhibition rate, life span of mice and the toxicity of chemotherapy were observed. The body weight, tumor weight, thymus index and spleen index in H22-bearing mice were also measured. The phagocytic function of macrophages was studied by observing phagocytosis of peritoneal macrophages.

RESULTS:

The increase of body weight in 5-FU plus ESB groups was higher than that in 5-FU group, and the side effects such as anorexia, abdominal distention and athrepsy were relieved. Compared with untreated group, prolonged lifetime in 5-FU plus high-dose ESB group and 5-FU plus low-dose ESB group was improved. Life prolongation rates in 5-FU plus high-dose ESB group and 5-FU plus low-dose ESB group were 61.46% and 23.59% respectively. High-dose ESB, 5-FU, 5-FU plus low-dose ESB and 5-FU plus high-dose ESB could inhibit the tumor growth, and the tumor inhibition rates were 36.98%, 42.26%, 52.45% and 65.28%, respectively. Thymus index and spleen index were increased significantly in 5-FU plus low-dose ESB group and 5-FU plus high-dose ESB group. White blood cell (WBC) count was decreased obviously in 5-FU group, while the count of WBC was increased in 5-FU plus low-dose ESB group and 5-FU plus high-dose ESB group. The phagocytic function of macrophages was also increased in 5-FU plus low-dose ESB group and 5-FU plus high-dose ESB group.

CONCLUSION:

ESB can enhance the effect of chemotherapy, relieve the side effects and improve immune function of mice in chemotherapy. These results suggest that ESB, as a biochemical modulator to enhance the therapeutic effects, is useful in cancer chemotherapy.

PMID:18601855