UDC 612.3 DOI 10.22448/AMJ.2017.4.106-106

STUDY OF QUESTIONS OF ANTIKOOL PTOPHYLACTIC NUTRITION OF POPULATION WITH THE USE OF ADAPTANGENES OF ANIMAL ORIGIN

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Abstracts For easening of implementation of mechanisms of adaptation to cold influence on humans, they use pharmacological agents; however, the scope of these foods is limited. Human nutrition focuses on the use of adaptangenes of traditional medicine of animal origin, such as pants of dappled deer and reindeer. As the result of experimental research they got new data on exclusion of toxicity of researched adaptangenes, antioxidant properties actoprotective effect of cold influence on organism were identified.
Key words Pants, cold influence, antioxidant effect, actoprotective influence.

The most important pathogenic climatological environmental factor influencing on the population of Russian Federation, especially in the North and Far East is cold. Adaptation to cold influence is long process; morphological changes are stipulated by the deterioration of cell membranes and activation of lipid peroxidation etc. For easening of adaptation reactions to cold, they use the means from pants of dappled deer and reindeer influencing human organism softly and harmonically without side effects (Brachman 1974).

The goal and task of research was scientific-methodical ground of nutritive use of pants' foods for increasing of human organism' cold-resistance.

Materials and methods

Research on exclusion of toxicity of foods from pants were conducted in accordance with generally accepted methodical approaches (I.V. Sanozkii and coauthors 1979). For study of antioxidant features of foods from pants, they selected biochemical methods letting evaluate the participation of researched foods in the processes of peroxidized lipid oxidation (POL). Physical working capacity was identified according to the swimming time, working capacity of experimental rats on tertiary. The study of adaptive reactions of animals towards cold were conducted with the use of model of long cold influence with the use of climatic cell of the firm "Fentron" – GDR (V.A. Dorovskih 1987). The researched elements of pants are safe according to the criteria of common-toxic influence. They respond to the demands of safety according to ecological and hygienic concept of human nutrition. The following foods from pants are increasing the stability of animals towards fatigue in conditions of adaptation to coldness. They are effective as antioxidant means for prevention of pathogenic influence of low temperatures in the periods of long freeze. That is adaptogenic elements from pants are recommended for use in human nutrition for correction of cold stress on organism.

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INHIBITORY EFFECT OF COMBINATION OF DOXORUBICIN HYDROCHLORIDE AND LIGUSTRAZINE ON PROLIFERATION OF HELA CELLS AND HEP-G2 CELLS

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Abstract Objective: To study the effect of doxorubicin hydrochloride (DOX) combined with ligustrazine (TMP) on the proliferation of Hela cells and Hep-G2 cells, and evaluate the inhibitory effect of combination therapy on the proliferation of tumor cells. Methods: MTT assay was used to detect the effects of TMP, DOX and combination of both on the proliferation of Hela cells and Hep-G2 cells, respectively.Results: In the selected concentration range, the inhibitory rate of Hela cells and Hep-G2 cells was inhibited in a dose-dependent manner. The combination of TMP and DOX in the treatment of Hela cells showed a good additive effect ,and the treatment of Hep-G2 cells had a certain synergistic effect, when the ratio of tetramethylpyrazine to doxorubicin was 5: 1,2.5: 1 and 1.25: 1. The concentration of DOX in the range of 5 ~ 20mg / L and the concentration of TMP in the range of 25 ~ 100mg / L.Conclusion: The combination of DOX and TMP can inhibit the proliferation of Hela cells, Hep-G2 cells, promote cell apoptosis.
Key words: MTT;effect of drugs combination ;synergistic.

Objective

In this study, it uses a combination of chemotherapy(DOX) and traditional Chinese medicine(TMP)[1-2], after pre-test screening to determine the concentration of two kinds of drugs, and according to it set a different proportion of groups, Which provides a new idea for the determination of the dosage range and the proportion of the combination therapy, which provides a theoretical basis for the rational application of clinical combination therapy.

Materials and Method

Materials: Adriamycin hydrochloride (CAS:25316-40-9, Beijing Huafeng Bo Technology Co.Ltd.);Tetramethylpyrazine (CAS: 1124-11-4, Nanjing Dao Sifu Biotechnology Co., Ltd.); DMEM mediumwas purchased from Gibco Chemical Co. (Carlsbad, CA, USA);Serum (Shanghai ExCell Biological Products Co., Ltd.)

Method:MTT assay was used to detect the inhibitory effect of DOX, TMP and different proportions of two drugs on the proliferation of Hela cells and Hep-G2 cells.100 µl of Hela and Hep-G2 cells in logarithmic growth phase were placed in 96-well plates.The cells were cultured for 24 h in a 5% CO2 incubator.One group was added to the cell suspension without drugs as a control.Then we added different concentrations of TMP and DOX, each concentration of 5wells.After cultured for 48 h, 10 µl of MTT solution was added to each welland culture was continued for 4h. 150 µl of DMSO was added to each well.The OD valuewas measured at 490 nm.Inhibition

rate=(1-ODdrug/ODcontrol)×100%, The joint utility was evaluated according to the Golden formula Q=Ea+b/(Ea+Eb-Ea×Eb)[3], Ea+b was the combined inhibition rate, Ea and Eb were the inhibitory rates of A and B drugs.0. 85 <Q <1. 15 ,Q> 1.15, Q <0.85indicates the addition, the synergistic effect, the antagonism of the two drugs. Results and discussion

At the same drug concentration, the survival rate of the cells gradually decreased with the prolongation of the time of action. When the time of action is shorter (less than or equal to 24 hours), the cells have a high survival rate even if the cells are treated with higher drug concentration□so it can not reflect the killing effect of drugs on cells. In this study, 48 h was selected as the time of MTT assay.As traditional Chinese medicine has a complex composition, multi-target, small adverse reaction characteristics, combined with chemotherapy drugs can not only enhance the treatment effect, but also can reduce the adverse reactions. In this study, the ratio of two drugs(TMP: DOX) was 20: 1, 10: 1, 5: 1, 2.5: 1, 12.5: 1,each ratio set a different drug concentration value. For the combination of two drugs treatment of Hela cells, we can see that the two drugs only had a additive effect, and was in a dose-dependent manner.Combined treatment of Hep-G2 cells, with the proportion of changes, the two drugs from the additive effect into a synergistic effect, the ratio of 5: 1,2.5: 1,1.25: 1, showing a synergistic effect. Combination therapy for the treatment of tumors opened up a new path to improve the previous use of chemotherapy, not only can reduce side effects, but also to strengthen the treatment effect.

	c (mg/ L)		Effect Of					Effect Of
ρ (mg/L)			Inhibition/%	QHela	Drugs Combination (Hela)	Inhibition/%	QHep-G2	DrugsCombination (Hep-G2)
TMP:DOX	TMP	DOX	Hela			Hep-G2		
20:1	400	20	85.4	0.993	+	80.1	1.100	+
	200	10	83.2	1.006	+	69.5	1.071	+
	100	5	73.6	1.001	+	63.2	1.122	+
	50	2.5	52.9	1.051	+	52.2	0.995	+
	25	1.25	41.4	1.021	+	47.5	1.083	+
10:1	200	20	83.9	0.988	+	79.2	1.106	+
	100	10	82.4	1.013	+	68.0	1.134	+
	50	5	71.7	0.990	+	62.1	1.164	++
	25	2.5	47.9	0.979	+	51.8	1.023	+
5:1	100	20	82.3	0.983	+	78.1	1.155	++
	50	10	79.5	0.987	+	67.6	1.182	++
	25	5	71.4	0.996	+	59.2	1.148	++
2.5:1	50	20	81.3	0.978	+	76.2	1.179	++
	25	10	79.4	0.993	+	66.7	1.200	++
1.25:1	25	20	80.4	0.973	+	76.5	1.194	++

Table.Inhibitory effects of DOX and TMP on Hela cells and Hep-G2 cells

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UDC 61 DOI 10.22448/AMJ.2017.3.107-108

IMPACT OF LOW TEMPERATURES ON THE EPITELY OF RESPIRATORY WAYS IN RATS OF VARIOUS AGE

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Abstract. With the general cooling of the organism in the epithelium of the cranial and caudal part of the trachea, a greater decrease in the number of basal and especially intermediate elements was noted in older animals compared with young rats, an increase in the number of goblet cells. Most of the intermediate cells are in a state of extrusion. In small bronchi, the number of ciliate cells decreases in old rats, destructive changes increase in them, the number of Clara cells (CC) increases in a state of elimination.

Key words: trachea, bronchi, multi-row epithelium, Clara cells, cell extrusion, low temperatures.

The main role in the implementation of the protective functions of the mucous membrane of the respiratory organs is played by the epithelial lining providing cell proliferation and differentiation. It is known that low temperatures have a negative impact on all airway structures [2]. The loss of respiratory tract epitheliocytes is realized not only by apoptosis, but also by elimination of morphologically viable elements [3]. The reaction of cells and tissues to the effect of low temperatures also depends on the age of the organism, as the level of metabolic processes decreases, which leads to the activation of oxidative stress and the development of a pathological process in the structure of the epithelial layer [1, 4].

Materials and methods

The work was performed on 60 mongrel white rats, aged: 6-7 months (young) and 19-20 months (old). The experimental animals were divided into two main groups (young and old). Each of the groups included 2 subgroups: 1. Intact. 2. Animals that were subjected to general cooling for 14 days for 3 hours daily at a temperature of -15 ° C. The object of the study was the cranial and caudal sections of the mucous membrane of the trachea and the wall of the intra-lobular bronchus (small caliber). From the material obtained, half-thin sections were made which were stained