
Cytoarchitectonics of mucous membrane's diffuse lymphatic tissue of larynx of the deceased from common hypothermia in the Republic of Sakha (Yakutia).

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By methods of microscope research cytoarchitectonics of mucous membrane's diffuse lymphatic tissue of larynx of the deceased from common hypothermia and alcohol intoxication was learned. It was revealed that some changes in cellular composition of mucous membrane's diffuse lymphatic tissue of larynx at mortally hypothermia – decreasing of T- and B- lymphocytes and plasmacytes and increasing of the number of destructively changed ctlls and macrophages, that let us confirm in suppression of local immunity of the deceased from natural low temperature in the territory of the Republic of Sakha (Yakutia).

Key words: diffuse lymphatic tissue, common hypothermia of organism, cold factor, lymphocytes, plasmacytes, macrophages, destructively changed cells.

Introduction. Learning of cold factor on man's organism in modern conditions is rather actual. Accumulated literature data convincingly testify the oppressive action of hypothermia on cellular and humeral immune answer about changes in man's organism at one time deep influence of cold. [1,4,7].

In realization of protective reaction of organism the main role is given to lymphoid tissue of larynx of hollow organs. By M.P. Sapin's terminology this tissue does the function of "watching post" on the way of introduction of genetically strange substances. [3,9,10].

Thus one of the perspective directions researching of acute and chronic influence of cold factor on man's organism is researching of immune structure of respiratory system specifically of larynx which is the primary part of respiratory ducts and one of the first is influenced by low temperature.

Given research work is the first complex morphological research of reactivity of lymphoid structure of larynx at the influence of natural low temperature in conditions of the Republic of

Sakha (Yakutia).

The aim of researching: Learning of cytoarchitectonics of mucous membrane's diffuse lymphatic tissue of larynx of the deceased from common hypothermia in the Republic of Sakha (Yakutia) (morphological researching).

Achieving of the aim is provided by solving the following tasks:

- Learning of mucous membrane's diffuse lymphatic tissue of larynx of the deceased in summer from incompatible with life mechanical trauma not having pathology in their respiratory system during their life in conditions of the Republic of Sakha (Yakutia).
- Learning of morphology of diffuse lymphatic tissue of mucous membrane of larynx of people who died from organism's hypothermia in winter in conditions of the Republic of Sakha (Yakutia).
- Learning of morphology of diffuse lymphatic tissue of mucous membrane of larynx of people who died from alcohol intoxication in winter in conditions of the Republic of Sakha (Yakutia).
- To give comparative value of mucous membrane's diffuse lymphatic tissue of larynx of people who died in summer from common hypothermia of organism and alcohol intoxication.

Materials and methods of researching: Taking of material is carried out in different time of the year on the base of State Budget Establishment "Forensic Medical Expert Bureau" the Republic of Sakha (Yakutia). The object of researching was mucous membrane's diffuse lymphatic tissue of all parts of larynx taken from 48 died men from 20 till 68 age. All bodies of the deceased were divided into 3 groups:

The 1st group – people died in summer from incompatible with life mechanical trauma not having pathology in their respiratory system during their life (control group);

The 2nd group - people died in winter from common hypothermia;

The 3rd group - people died in winter from alcohol intoxication.

Pieces of mucous membrane of larynx were taken from the part entry, of left and right ventricle's and under throat field. The material was fixed in 10 % neutral solution of formalin, put paraffin Histomix. Cutting of paraffin blocks was done by microtome Leica HL 1210, the thickness of the microscopic section is 0,3-0,5 mkm. The microscopic sections for wide path histological research were colored by gemotoxilin and eosin. Cytoarchitectonics lymphoid structure was learned by the use of light microscope Leica DMD under oil immersion at increasing 90 times with the use of 25 ocular C.B.Stefanov's morph metrical screen. (1974) [8]. Counting of screens (area $S = 0,016 \text{ mm}^2$) was done in blood epithelia, in diffuse lymphoid tissue of own tablet of the mucous membrane of larynx and under mucous layer. At analysis of histological preparations little, middle and big lymphocytes mature and immature plasmatic cells, macrophages, thick cells, eosinofils, neutrofilis, phibroblasts, cells in the state of mythos, destructively changed cells were taken into consideration. Each histological microscopic section was seen in five fields of vision. At counting cells in focal point of the screen were fixed. Received data were written in the tables. Statistic analysis of the taken data is in ms Excel 2007.

Immunophenotyping T-, B-lymphocytes and macrophages (CD3+, CD20+, CD68+) were carried out with the use of vision PolyVue Mous/Rabbit HRP Kit (producer Diagnostic BioSystems, the USA) in accordance with the instructions of firm-producer. Antigen's decamouflaging was fulfilled during 2 minutes in citrate buffer (pH 6,0). Primary antibodies (CD20+, CD3+, CD68+) were incubated at temperature 37°C during one hour. The result of reaction were visional by diaminobenzidin [2,5,6]. Microscopy was made in the passing through light by microscope Leica DMD under oil immersion at increasing the microscope 90 times. Taking picture of micro preparations was done by microscope Leica.

Results and discussion. Results of our research showed that lymphoid structure of larynx in summer time were performed by diffuse lymphatic tissue which is found in mucous membrane of all parts of organs mainly in subepithelian layer, besides single lymphoid cells are met in epithelia's, in mucous membrane and adventices and by gathering of lymphoid cells – lymphoid knots which are situated in the field of over larynx, ventricles and in the front wall of vocal chords field. At learning histological preparations of larynx of people, died from common hypothermia of organism, we established that mortal hypothermia calls a number of structural changes of lymphoid tissues in comparison with control. So it is marked that substantial decreasing of percentile content of lymphoid tissues of mucous membrane in the beginning of larynx: lymphocytes 20%,

plasmacytes 2 % less in comparison with summer period. At the same time the content of thoraxes destructively changed is increased at 13% in comparison with control and alcohol intoxication (picture 1).

Such a picture is watched in of mucous membrane of larynx's ventricle. Number of lymphocytes in comparison with control group is decreased at 21 %, plasmatic cells at 3 %. Per cent content of destructively changed cells is increased at 6% (picture 2).

In vocal chords of larynx we also watch considerable suppression of immunity. Per cent content of lymphocytes is decreased at 21%, plasmatic cells at 2 %, per cent correlation of destructive cells is increased at 13%, macrophages at 7% in comparison with control group (picture 3).

The value of immune status index of people who died from common hypothermia, in comparison with control group has revealed the decreasing of T- cellular (CD3+), B-cellular (CD20+) and considerable activation of macrophage cellular population (CD68+) (picture 4).

Thus, the number of T-lymphocytes (CD3+) in mucous membrane of the right ventricle of people who died from common hypothermia is decreased at 16%, number of B- lymphocytes (CD20+) is decreased at 18% in comparison with control group. The number of macrophage cellular population (CD68+) is increased at 11% (photo 1,2).

Conclusions. Thus we found out reliable differences in index of researched group's thorax content of diffuse lymphoid tissue of larynx's mucous membrane.

According to the results of our data people died from common hypotermia of organism considerable decreasing of T- and B-lymphocytes, plasmocytes, and increasing the number of destructively changed cells and macrophages is marked in comparison with control and alcohol intoxication that let us confirm in suppression of thorax immunities at mortal hypothermia in conditions of the Republic of Sakha (Yakutia).

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