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Pathomorphology of Regional Intrachest Lymph Nodes at Destructive Tuberculosis of Lungs with Account of Drug Resistance of Micobacteries

ABSTRACT

We studied morphological changes in the regional intra chest lymph nodes with drug-resistant fibro-cavernous pulmonary tuberculosis. Macroscopically all groups of lymph nodes were increased in sizes, indurated, with small foci of caseous necrosis. At the microscopic research of regional intra chest lymph nodes on the background of hyperplasia there was sharp narrowing and devastation of a T-zone with atrophy of a significant amount of lymphoid follicles. Thus, in the group with multidrug resistance the width of the paracortical zone is twice less than in the groups with monoresistance and remained constant drug resistance. Its bound with the cortical zone wasn't determined. The higher rate of pathomorphological changes were observed in the groups with polyresistance and multidrug resistance.

Keywords: tuberculosis, pathomorphology, drug resistant, lymph nodes.

INTRODUCTION

Annually more than 3 million people (6% of all causes of death) die of different forms of tuberculosis. In developing countries the fatal cases connected with tuberculosis make 25% of number of lethal outcomes which can be considered threatening. The special problem is drug-resistant pulmonary tuberculosis. According to World Health Organization, among patients with initial diagnosis 9,9% of mycobacterium strains of are steady at least against one drug, and resistant to tuberculosis mycobacterium, at least, to Isoniazid and Rifampicin is considered as multidrug resistant (MDR) [1,2,5].

The fact of existence of multidrug resistance of mycobacterium is the basis for preservation of epidemic intensity of tuberculosis, both in Russia, and in the Amur region in particular. There is rowth of incidence and mortality at tuberculosis with tendency to stabilization of the situation in the last years, higher increasing rate of acute progressive and generalized forms of the disease as well as high frequency (10-20% and more) polyresistant forms of tuberculosis. Social disadaptation of a certain part of the population (alcoholism, drug addiction, vagrancy) and high level of migration create a new situation in which the structure of mortality at tuberculosis changes towards prevalence the acute progressive and not revealed during lifetime of forms of a disease [3].

Strains of mycobacterium with MDR, cause tubercular process to be treated hardly, as the result of it severe chronic forms of the disease occur, not reacting to medicinal therapy [3,4,6]. Such process usually is widespread, is followed by severe destructive changes and has the progressing character with involvement in specific process of intra chest lymph nodes with frequent lymphohematogenous dissemination.

The aim of the research is to study pathomorphological changes in intra chest lymph nodes on THE autopsy material affected by medicinal and steady tuberculosis depending on a type of drug-resistance.

MATERIALS AND METHODS

The autopsy material covers 105 patients who died with drug-resistant fibro-cavernous pulmonary tuberculosis of Blagoveshchensk. During lifetime patients received standard schemes of treatment with use of the main antitubercular preparations (ATP) (an Isoniazid, Rifampicin, Pyrazinamid, Etambytol and Streptomycin), at development of the secondary drug-resistant (DR) of a combination of the main and reserve ATP.

All dead were divided into groups depending on type of drug-resistant of the activator (monoresistance - 15, polyresistance - 25 and multiresistance – multidrug resistant - 49). On age sexual structure of group were representative (middle age 45,86±11,73). Men aged from 25 till 70 years made 89,4%.

The comparison group included 16 patients died of pulmonary tuberculosis with drug-resistance.

As objects of the research regional intra chest lymph nodes were applied.

Slices were fixed in 10% formalin and filled in paraffin by a standard technique. The morphometric analysis is made on histologic cuts 5 microns thick. Cuts were painted with hematoxylin and eosin.

At macroscopic research the prevalence of defeat the regional intra chest lymph nodes was revealed by the specific process. Morphometric research was conducted by means of the research trinocular microscope with photonozzle and the automated digital system with software for the digital microscopy of VisionMorpho.

At microscopic research we determined a diameter of follicles, width of T-zones, quantity of lymphocytes of T - and B-zones on 1000 mcm2, with statistical processing of the obtained data with use of the MicrosoftExcel and "Statistika 6.0" programs.

RESULTS AND DISCUSSION

The obtained data testify to the fast, progressing course of destructive tubercular process in lungs, being followed thus by the expressed pathomorphological changes in lymph nodes.

Macroscopically all groups of lymph nodes were increased in sizes, dense, on a section with the small centers of a caseous necrosis. These pathomorphological changes are most expressed were observed in groups with polyresistance and multiple medicinal stability. The sharp atrophy of lymphoid follicles, the remained follicles small, with sites of a lipomatose is microscopically noted.

Average diameter of follicles in these groups it is reliable less, than in group of comparison and group with monoresistance (Pic. 1).

In most cases at patients with poly-and multiresistance of mycobacterium the paracortical zone is considerably narrowed. In all groups of patients with tuberculosis its average width reliable is less than in control group. The tendency to its reduction from group of comparison to group with mono - poly-and multiresistance is noted. Its border often doesn't decide on a cortical zone (Pic. 2).

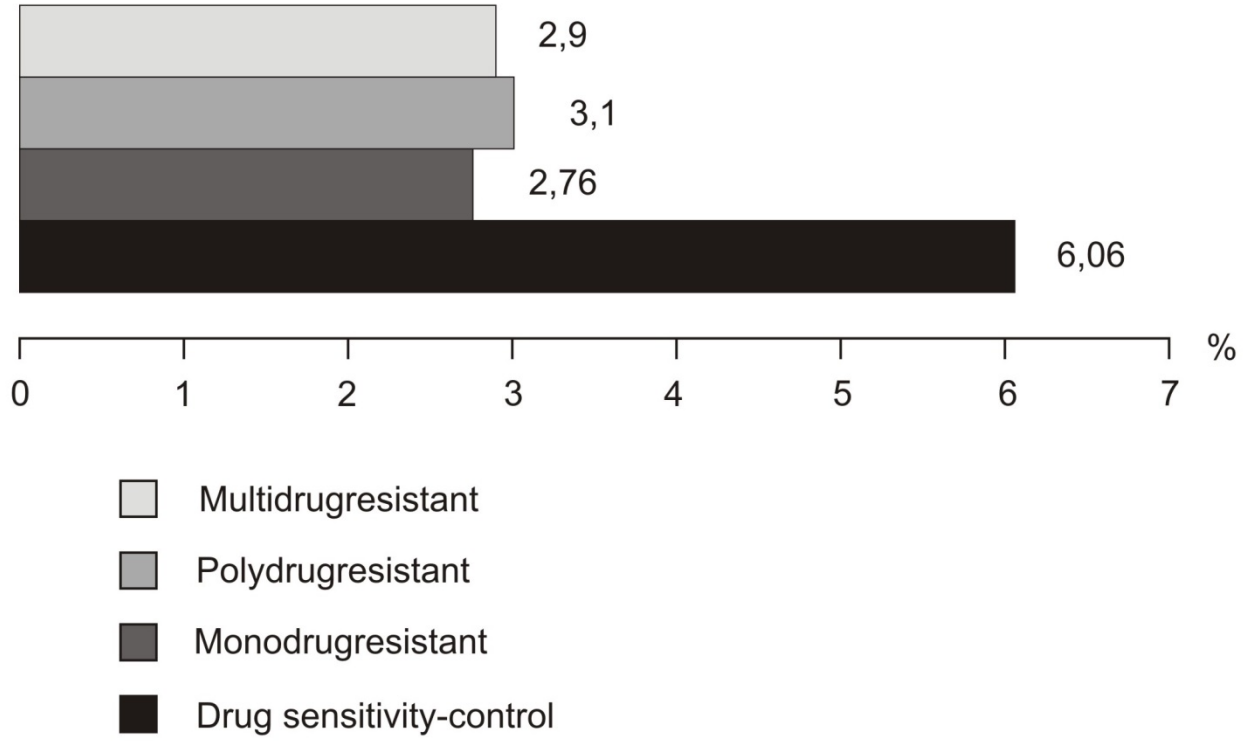
There is devastation of T-zones to decrease in quantity of lymphocytes. So patients with MDR have an average quantity of lymphocytes on the area of 1000 mkm2sostavlyaet 12,83±1,16, and in control group 21,13±1,83 ($P < 0,05$). It is resulted by an enlightenment of a paracortical zone with an exposure the reticular and the connective tissue of elements, with development of a plasmatisation (Pic. 3,4). In 65,3% of cases small epithelium-cellular granulomas with huge cells of Pirogov - Langkhans are found.

CONCLUSIONS:

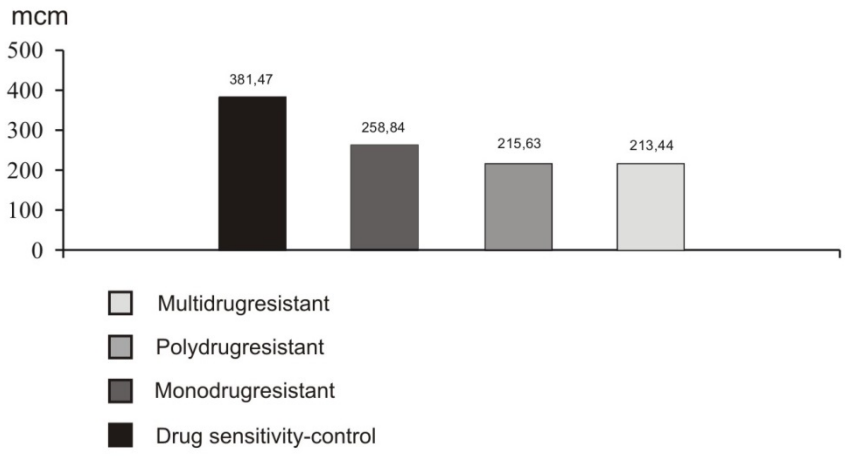
Thus we established that the patients with progressive fibro-cavernous pulmonary tuberculosis in the regional lymph nodes have acute devastation of T-zones with plasmatisation of the cortical substance and persistent responsive centers of follicles testifying to suppression of cellular immunity. The acute atrophy of primary follicles is noted as well as disappearance of secondary lymphoid follicles.

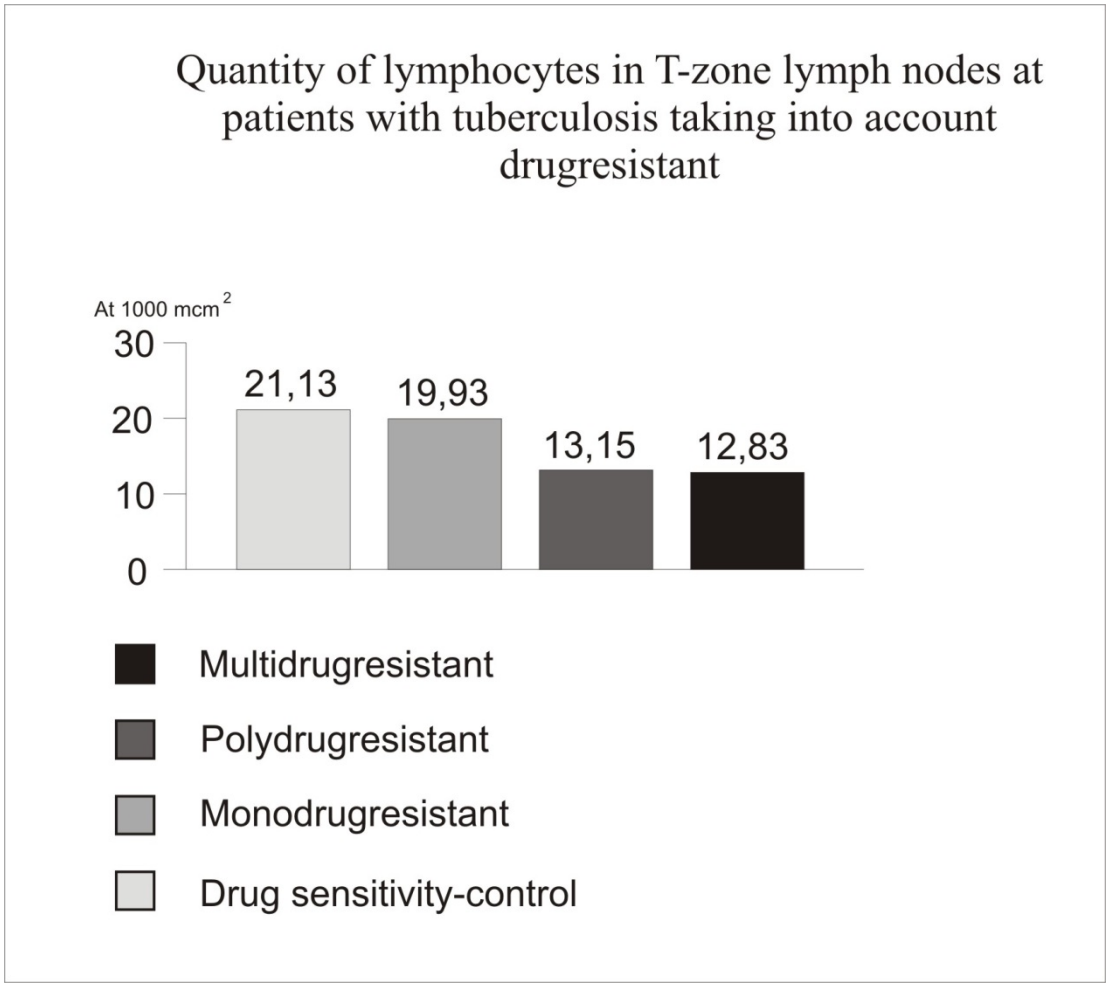
These changes are most expressed among the patients died from progressive fibro-cavernous pulmonary tuberculosis being affected by tuberculosis micobacteria with polyresistance and multidrugresistance during the lifetime .

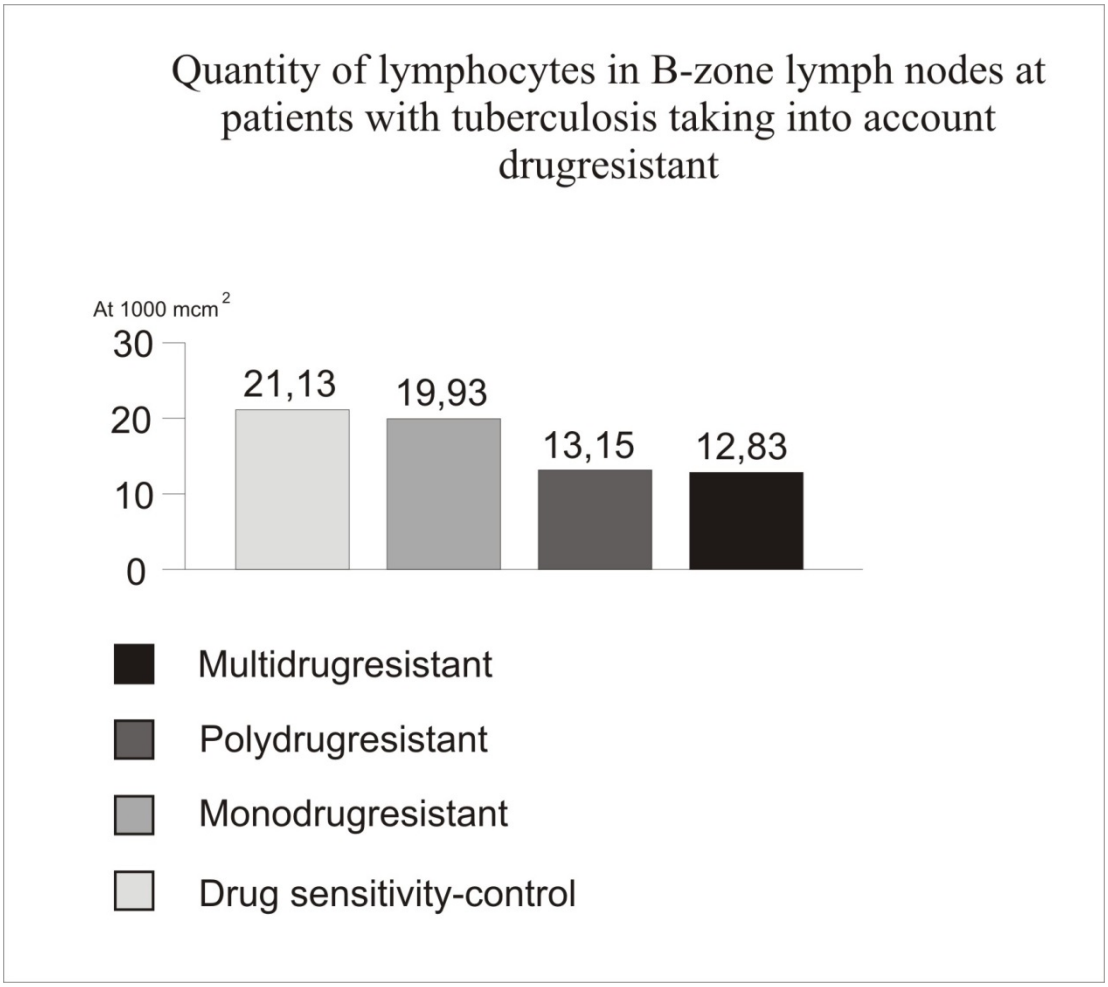
The relative volume of follicles in lymph nodes at patients with tuberculosis taking into account drugresistant



Average width of a paracortical T-zone in lymph nodes at patients with tuberculosis taking into account drugresistant




Quantity of lymphocytes in T-zone lymph nodes at patients with tuberculosis taking into account drugresistant
At 1000 mcm 2
30
20
10
0
21,13
19,93
13,15
12,83
Multidrugresistant
Polydrugresistant
Monodrugresistant
Drug sensitivity-control



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