THE ESTIMATION OF EFFICIENCY OF THERAPY AT SICK OF THE CHRONIC DUST BRONCHITIS AT THE STATIONARY STAGE OF MEDICAL REHABILITATION

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THE URGENCY

Preservation and strengthening of a manpower of Republic Kazakhstan is the basic condition for creation of steady financial and economic and resource base of the state, the further economic development of the country and growth of its total national product.

Medical rehabilitation – necessary, and quite often obligatory stage of treatment of patients with the various diseases, directed on restoration of the broken functions, work capacity of the patient, improvement of quality of life and the social status.

The existing approach to medical rehabilitation of patients with occupational diseases including a dust etiology, it is based on preventive maintenance principles, taking into account influence of the basic damaging factors and the most suffered bodies and systems of an organism with algorithms of rehabilitation [1, 2].

Treatment and rehabilitation are closely connected among themselves, mutually supplement each other and shouldn't be in confrontation. It is erroneous to perceive rehabilitation as an aftercare of the patient since rehabilitation methods are applied, since the earliest stages of disease. Regenerative treatment as the basis of medical rehabilitation, is a method of pathogenetic therapy [3].

Use in system of treatment-and-prophylactic actions at patients with diseases of easy bronchial spasmolytics and expectorant means, certainly, remains in the classical way of traditional treatment, meanwhile, for the purpose of optimization of spent medical rehabilitation, important complex application both traditional, and new means of medicamentous and non-drug treatment.

PURPOSE

To Develop programs of medical rehabilitation at workers of group of "risk" of development of a dust pathology and patients with occupational diseases of lungs.

MATERIALS AND RESEARCH METHODS

On the basis of clinic NTS GT and PZ MZ RK 43 patients, from them are surveyed: – 1 group (CDBII, n=15) – sick of a chronic dust bronchitis with respiratory insufficiency of II degree, receiving basic therapy; – 2 group (CDBII, n=28) – sick of a chronic dust bronchitis with respiratory insufficiency of II degree, receiving basic therapy in a combination to a treatment-and-prophylactic complex;

Course of treatment has made 10 days. Prior to the beginning of treatment at patients the written informed consent to carrying out of treatment-and-prophylactic actions undertook.

The information on distribution of participants on intervention groups remained as fiduciary till the moment of appointment of treatment. Registration and distribution of participants on groups was carried out by the responsible person from among research assistants of laboratory of a dust pathology. To the clinical personnel and the researchers, not engaged for registration and distribution of participants on groups, the accessory of patients to this or that group wasn't known. At all stages of a spent course of treatment-and-prophylactic actions the initial quantity of the surveyed remained. Criterion of preservation of quality of measurements was performance of functional researches by highly skilled experts in functional diagnostics.

Basic therapy includes:
– **NON-DRUG TREATMENT:** 1) a mode III; 2) a table № 15; 3) medical gymnastics, course of treatment – 10 employment, rate slow, amplitude incomplete, loading minimum; 4) independent employment in chamber 2 times a day – respiratory exercises;
– **MEDICAMENTOUS TREATMENT:** 1) mucolitic therapy: Ambrocsolum 30 mg on 1 t x 3 times a day within 14 days (strengthens physiological activity vibrating epithelium and peristaltic movements bronchiols, promoting advancement of a phlegm from

the bottom departments in the top departments of respiratory ways and to its deducing); 2) Tocopherolum acetate of 200 mg 2 times a day within 14 days (protect various substances from oxidizing changes);

Medical – the preventive complex «Wobenzym+ Vitrum+Phytotea +Aeroionization» included:

– Wobenzym under the scheme: on 3 tablets 3 times a day, 30 minutes prior to meal, washing down with a water glass (200 ml);

– Vitrum Beauty Elite under the scheme: on 1 tablet 2 times a day;

– Phytotea under the scheme: on 1 bag 3 times a day;

– Aeroionization was spent with aeroionizer "NPA-0001" RK-MT-5 N00155 use under the following scheme: 1st session of 5 mines at concentration of negative aeroions of oxygen (AI) to 10 thousand in 1 cm^3 of air. In the subsequent sessions were extended on 5 times with maintenance AI to 100, 300, 400, 500, 600, 700, 800, 900 thousand and 1 million in 1 cm^3 of air accordingly.

On each surveyed the card of clinical inspection including was filled: a passport part, a professional route, the anthopometrical data, data on bad habits, the subjective and objective data. The estimation of efficiency of treatment-and-prophylactic actions was spent by double registration of indicators of the general analysis of blood, the FLOOR-AOZ (TBK-JET products, dyen conjugates, double communications, tryens, a catalase in blood plasma), functions of external breath, blood gases, bodyplethyzmography before course of treatment.

Function of external breath was investigated on the automated spirometric analyzer of breath "the HELL-02M" (manufacture – Kazan). Following indicators were defined: vital capacity of lungs (VCL), the forced vital capacity of lungs (FVCL), volume of the forced exhalation for 1 second (FE1), an index of Tiffno (FE1/ FVCL), peak volume speed (C), the maximum volume speeds at level of 25,50,75% (MVS25, MVS 50, MVS 75). The received sizes of measured indicators compared to their due sizes in percentage terms.

Gases arterial blood were defined on a computer gas analyzer "Stat profile 5" ("Nova biomedical", the USA). Registered following parameters: a negative logarithm of ions of hydrogen (pH), parcial pressure of oxygen (pO_2), saturation oxygen (O_2sat), parcial pressure of carbonic gas (pCO_2), true bicarbonate (AB), standard bicarbonate (SB), the sum of all buffer bases (BB), surplus or deficiency of the bases (BE).

Cardiopulmonary diagnostic system PADSY (Patient Diagnostic System), by Medset, Germany (bodiplethizmography) and hardware-software er-

gospurometric module: program Ergo Spirometry for PADSY, the appendix to diagnostic system PADSY.

The volume of the spent researches is presented in table 1.

Object of biochemical researches was blood plasma. The blood taken from an elbow vein, was separated in a centrifuge at 3000 rpm within 10 minutes for branch of plasma from weights of the red cells.

In blood plasma defined indicators the POL – dyen conjugates, tryens and double communications, TBK-reactivity products in blood plasma [4, 5].

The statistical analysis of results of research spent with program use «STATISTICA» – version 6.0 on the computer «Athlon 2500XP +», text editor Microsoft Word 2003.

Digital values of investigated indicators are statistically processed with calculation of arithmetic average, its errors (m). For definition of reliability of distinctions between average values of compared parameters used criterion of Student. Significance values – 0,05 were taken into consideration; 0,01; 0,001. For the purpose of definition of degree of communication between two random variables carried out the correlation analysis, counted correlation factor (r) [6, 7].

RESULTS AND DISCUSSION

At research of indicators the POL-AOZ before treatment in 1 to group sick of a chronic dust bronchitis with respiratory insufficiency of II degree, receiving basic therapy, is marked authentic decrease tryens and double communications on 33% and 36% accordingly, the tendency to decrease in level of TBA-reactivity products and dyen conjugates on 2% and 7% accordingly, and activity of a catalase remains without changes. In 2 group sick the chronic dust bronchitis with respiratory insufficiency of II degree, receiving basic therapy in a combination to a treatment-and-prophylactic complex, reveals authentic decrease in level of TBA-reactivity products, tryens, dyen conjugates and double communications on 14%, 48%, 49% and 33% accordingly, and activity of a catalase has authentically raised in 1,6 times (table 2).

So, at comparison of the received data in both groups decrease in activity of pathological products the POL in group of the patients receiving against basic therapy medical-preventive a complex that speaks positive action of components of the last on a process condition free radical oxidations of lipids that leads to regulation of process of the oxidizing metabolism providing stability of cytoplasmatic membranes to oxidizing stress by decrease of pathological activity of lipoperoxidation against strengthening of system of antioxidant protection in the form of authentic increase of activity of a catalase several times is observed.

Table 1.Objects and the methods of research spent at sick chronic dust bronchitis with respiratory insufficiency II degree

The work maintenance	Quantity of the surveyed	Quantity of the investigation
Clinical investigations:	43	348
Definition dyen conjugates, tryens and double communications in blood plasma (m.u.)	43	258
Definition TBA-reactivity products in the plazma of the blood (mkmol/ml)	43	86
Analyses of the function of external breath's function	43	860
Definition Gas structure of blood	43	258
Bodyplethyzmography	43	258
Total:	43	2068

Table 2. Indicators the POL-AOZ in plasma of blood at sick of a chronic dust bronchitis with respiratory insufficiency of II degree before and after therapy (M±m)

Indicators	I group (CDBII + BT, n=15)		II group (CDBII+BT + TPC, n=28)	
	before BT	after BT	before TPC	after TPC
ТВА-РП, mkmol/ml	3,01±0,19	2,94±0,25	1,33±0,31	1,14±0,26*
Tryens, m.u./ml	0,18±0,06	0,12±0,009*	0,25±0,06	0,12±0,04*
DC, m.u./ml	0,15±0,01	0,14±0,02	0,15±0,05	0,077±0,033*
Double communications, m.u./ml	0,047±0,007	0,03±0,006*	0,09±0,03	0,03±0,01*
Каталаза, mkkat/ml	13,51±2,48	13,7±1,99	5,44±0,9	8,74±0,08*

Note: *– Reliability of distinctions with control (p< 0,05) BT – basic therapy, TPC – treatment-preventation complex*

Efficiency of the spent therapy it was observed and at research of the general analysis of blood before therapy. In I group the tendency to decrease in level of hemoglobin on 2%, a tendency to increase in level of leukocytes on 3% is revealed. From leukocytes, eozynophyles and lymphocytes authentic decrease on 12%, 23%, 12% accordingly is marked. Other indicators of the general analysis of blood without special changes. In II group of patients authentic decrease in quantity of leukocytes, basophiles, eozynophyles, stabs and monocytes on 34%, 41%, 17%, 41% and 17% accordingly is revealed, thus hemoglobin level has authentically raised on 15% (table 3).

The analysis at research of indicators of function of external breath before therapy has shown that in IY to group surveyed against the spent medical actions authentic increase VCL, FVCL, FE_1, FE_1/FVCL, MVS25, MVS50, MVS 75 and V2/V1 on 7%, 11%, 17%, 8%, 16%, 17% and 12% accordingly is observed. In YI to group of the surveyed authentic increase VCL, FVCL, FE_1, FE_1/FVCL, MVS25, MVS50 and MVS75 on 19%, 15%, 15%, 8%, 24% and 29% accordingly (table 4) is revealed.

From table 5 it is visible that in I group at research of indicators bodyplethysmography authentic increase total amount of lungs (TAL) is revealed

Table 3. Indicators OAK at sick of a chronic dust bronchitis with respiratory insufficiency of II degree before and after therapy (M±m)

Indicators	I group (CDBII + BT, n=15)		II group (CDBII+BT + TPC, n=28)	
	before BT	after BT	before TPC	after TPC
Hb	144±3,85	141,93±3,35	144,96±2,22	166,78±1,9
red (blood) cells	4,60±0,01	4,73±0,01	4,78±0,01	4,76±0,06
leucocyte	6,16±0,37	5,4±0,029*	9,59±0,025	6,28±0,03*
bazophyles	1,0±0,06	1,06±0,06	0,78±0,01	0,46±0,09*
eozinophyles	3,26±0,04	2,5±0,027*	1,89±0,028	1,57±0,02*
stabs	2,6±0,03	2,26±0,024	0,78±0,012	0,46±0,09*
segmentated cell	61,2±0,16	62,866±0,05	61,14±0,012	62,75±0,20
lymphocytes	28,53±0,016	32,00±0,09*	33,28±0,016	32,57±0,13
monocytes	4,00±0,052	4,26±0,056	4,57±0,039	3,78±0,027*
thrombocytes	207,13±6,24	207,73±6,91	228,85±1,78	226±6,25

Note: *– Reliability of distinctions with control (p< 0,05), BT – basic therapy, TPC – treatment-preventation complex*

and residual capacity of lungs (RCL) on 21% and 16% accordingly, the tendency to parity decrease between TAL and RCL to 3% at the same time is observed, and in II group the indicators TAL set forth above and RCL have increased by 38% and 11% accordingly, and the parity has changed towards reduction by 31% that testifies to more expressed efficiency of therapy in group of the patients receiving basic therapy in a combination to a treatment-and-prophylactic complex.

Thus, the revealed changes from volume of the forced exhalation, an index of Tiffno, RCL, being «the gold standard» for diagnostics of diseases of lungs and important spyrographyc indicators of the obstructive syndrome, more expressed at use of in addition treatment-and-prophylactic complex, specify on regression of the bronchoobstructiv syndrome and a syndrome of respiratory insufficiency which are shown and in improvement earlier us of the described subjective and objective symptoms.

The positive effect from the spent actions was observed and in dynamics of changes of indicators of gas structure of arterial blood. In I to group the tendency to indicator increase pO_2 on 6% is revealed. Level O_2sat, pCO_2 practically remains without changes. In II to group after the combined application of basic therapy and a treatment-and-prophylactic complex the authentic increase pO_2 and O_2sat on 16% and 21% accordingly is observed, thus level parcial pressure of carbonic gas authentically decreases on 48% (table 6).

Hence, medical rehabilitation at the persons, consisting in group of the patients with chronic dust bronchitis, should include along with the traditional actions, including expectorant therapy (Brongexinum, Ambrobene, Ambroxolum), directed on improvement of drainage function of lungs; bronchial spasmolytics (Teophyllinum, Teotardum), directed on restoration of bronchial passableness and activation mucociliaris epythelium; antioxidants (tocopherol acetate), directed on decrease in activity of lipoperoxidation's process; physiotherapy (a magnetotherapy, Ultra-violet irradiation); TFE (respiratory gymnastics, phytbolgymnastic), system enzymotherapy (Wobenzym, rendering anti-inflammatory, and immunomodulated effect), a polyvitaminic and polymineral complex (Vitrum Beauty Elite participating in basic metabolic processes, improves microcirculation); the aeroionization providing anti-inflammatory effect.

Table 4. *Indicators of function of external breath at sick of a chronic dust bronchitis with respiratory insufficiency of II degree before and after therapy (M±m)*

Indicators	I group (CDBII + BT, n=15)		II group (CDBII+BT + TPC, n=28)	
	before BT	after BT	before TPC	after TPC
VCL	61,00±0,38	65,33±0,31*	71,75±0,23	85,62±0,77*
FVC	54,33±0,31	60,53±0,30*	73,32±0,37	84,35±0,74*
FE_1	44,33±0,29	51,93±0,27*	61,8±0,24	70,97±0,61*
FE_1/FVCL	74,40±0,40	80,46±0,47*	77,07±0,32	83,26±0,73*
MVS 25	36,00±0,36	41,93±0,38*	46,88±0,27	58,17±0,37*
MVS 50	29,06±0,31	33,86±0,27*	39,62±0,40	51,00±0,28*
MVS 75	27,26±0,31	30,46±0,21*	37,74±0,38	39,30±0,27
V2/V1	2,74±0,15	2,22±1,21*	3,12±0,12	2,57±0,06

Note: ** – Reliability of distinctions with control (p< 0,05), BT – basic therapy, TPC – treatment-preventation complex*

Table 5. *Indicators of the bodyplethizmography at sick of a chronic dust bronchitis with respiratory insufficiency of II degree before and after therapy (M±m)*

Indicators	I group (CDBII + BT, n=15)		II group (CDBII+BT + TPC, n=28)	
	before BT	after BT	before TPC	after TPC
TAL, ml	96,6±0,5	117,2±9,7	100,7±0,03	138,43±0,043
RCL, ml	99,4±3,6	115,2±2,5	90,1±0,46	100,12±0,012
TAL/RCL, %	32,5±0,5	31,6±0,5	32,79±0,79	22,67±0,057

Note: ** – Reliability of distinctions with control (p< 0,05), BT – basic therapy, TPC – treatment-preventation complex*

Table 6. *Indicators of gas structure of blood at sick of a chronic dust bronchitis with respiratory insufficiency of II degree before and after treatment (M±m)*

Indicators	I group (CDBII + BT, n=15)		II group (CDBII+BT + TPC, n=28)	
	before BT	after BT	before TPC	after TPC
pO_2, mm. Hg.	47,68±2,88	50,56±3,10	61,74±1,65	71,55±1,27
pCO_2, mm. Hg.	39,31±0,70	38,96±0,76	37,98±0,79	18,17±1,15
O_2sat, %	83,98±1,86	83,28±2,07	79,92±3,23	96,50±2,8

Note: ** – Reliability of distinctions with control (p< 0,05), BT – basic therapy, TPC – treatment-preventation complex*