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(XII итоговой)  
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конференции  
молодых ученых,  
посвященной  
70-летию ЮУГМУ**

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of the V international  
(XII final) scientific  
and practical conference  
of young scientists  
dedicated  
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**ПРОВЕДЕНИЕ ИНФОРМАЦИОННО-ПСИХОЛОГИЧЕСКОЙ РАБОТЫ С ЦЕЛЮ  
ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ ЛЕЧЕНИЯ БОЛЬНЫХ ХИМИОРЕЗИСТЕНТНЫМ  
ТУБЕРКУЛЕЗОМ ЛЕГКИХ**

**Бойко А. В.**

Буковинский государственный медицинский университет,  
кафедра фтизиатрии и пульмонологии, г. Черновцы

Вопрос о принуждении стационарных больных, выделяющих микобактерии туберкулеза, придерживаться лечебного режима является очень актуальным в условиях, когда становится распространенным лекарственно-устойчивый туберкулез. Больные, прервавшие лечение, которые потом возвращаются в стационар, находятся в таком состоянии, что расходы на лечение значительно превышают доступные и вылечить таких пациентов очень трудно. Доказано, что применение системы информационного воздействия на впервые выявленных больных туберкулезом легких позволяет уменьшить количество лиц, нарушающих режим стационарного лечения в 2,5 раза, повысить эффективность стационарного лечения.

**INFORMATION-PSYCHOLOGICAL WORK CONDUCTED TO IMPROVE  
THE EFFECTIVENESS OF TREATMENT OF PATIENTS WITH PULMONARY  
TUBERCULOSIS CHEMORESISTANT**

**Boiko A. V.**

BSMU, m. Chernovtsy, Ukraine  
Department of Phthisiology and pulmonology

The level of appropriate attitude to fulfil doctor's recommendations in health care system is low: approximately 0.2 % of all TB patients do not take drugs prescribed by the doctor [15]. In papers of foreign scholars who study patient's disposition to the prescribed therapy, the latter was defined as compliance therapy that means a degree of patient's readiness to follow doctor's recommendations [15, 11, 23]. Share of the TB patients who were first diagnosed with TB and stopped taking medications amounts to 20 and 50 %. Informational and educational work with the patients is a means to form a responsible attitude of TB patients to their treatment [2, 4].

Material of the research: 210 patients with first pulmonary TB diagnosis and 43 patients with suspicion on multiresistant character of Chernivtsi Oblast Anti TB Hospital who were polled by the method of random selection. Methods of investigation: clinical, X-rays, clinical and lab, microbiological, statistical.

The results of the study. Index of treatment of cohort of patients among new cases of smear-positive TB patients is the main indicator of treatment efficiency. It is stipulated by the fact that bacterial discharge of these patients safeguards considerable decrease in the spread of the infection among population.

Low index of treatment efficiency is stipulated by the high percentage of: failed treatment — 18,2 % — demonstrates the absence of controlled treatment and high level of multiresistant TB; dead — 14,1 %, half of who were patients with co-infections of TB/HIV who were not provided in full with ART therapy that led to death; broken treatment — 7,8 %, demonstrates low motivation of the patients to get cured and unsatisfactory social support of TB patients during treatment (food, hygienic kits or other); moved to other oblasts — 3 %.

According to annual reports of Chernivtsi Oblast Anti TB Hospital in 2010 effectiveness of smear-positive TB treatment was the following: twenty-eight patients were cured (17,8 %), 101 patients ended treatment (64,3 %), died — 11 (7 %), failed treatment was registered in nine patients (5,7 %), six patients broke their treatment 6 (3,8 %), discharged or moved — 2 (1,3 %).

It was established that patients left hospital and were using alcohol and/or drugs while analysing disposition of the patients to treatment. They returned to hospital only due to progress of TB, pulmonary bleeding, cardiopulmonary disease. Patients left hospital mostly during first two months of treatment. Thus, within two months almost 12 % of patients left hospital, from 2 to 3 months — another 7 %, from 3 to 4 months — about 2 %.

Therefore 25,3 % of patients were discharged early due to drinking and leaving hospital; 22 (10,5 %) — due to objective reasons; 137 of patients (65,2 %) — ended the main course of chemotherapy in the hospital.

The results of treatment of patients who followed the regimen for over two months are provided in Table 1.

Table 1.

The results of treatment of patients following the regimen for over 2 months

Treatment period	Total	Positive result	Progress	Without effect
2–3 months	20	10 (50 %)	2	8
3–6 months	17	12 (70,6 %)	1	4
over 6 months	14	11 (78,5 %)	-	3

As we can see from Table 2, under the condition of adequate term of treatment in the majority of patients positive result was achieved, with the increase of treatment period its share rose.

While polling 159 patients it was found out that secondary education and lower than that was in 51 % of patients, secondary specialized — 36 %, non completed and completed higher education — 11 %. Social portrait was the following: workers — 34 %, specialists — 8 %, civil servants — 6,6 %, medical workers — 1 %, entrepreneurs — 5,6 %, unemployed (pensioners, disabled, unemployed, housewives) — 46 %. Residents of Chernivtsi — 35,5 %, oblast — 65,5 %.

Social portrait of patients (51) who ended their treatment early is the following: 68,2 % — unemployed, 56,2 % — drinking addicts, 35,1 % — were inmates in the past, 5,1 % — homeless.

After polling the patients who broke their treatment the following reasons for early ending of their treatment provided: necessity to earn their living — 25 % (had to make money, necessity to be at work); insufficient medical information of the TB patients — insufficient knowledge about TB and its treatment — 13,5 % (consider themselves healthy); absence of comfortable conditions in round-the-clock hospitals — 21,4 %; family circumstance (lengthy absence from the family for the period of treatment, inability to leave home) — 9 %; misuse of alcohol (instead of medications prefer alcohol) — 29 %; do not want to be treated without reasons — 2,1 %.

Study of this question showed that most frequent reasons for early ending of TB treatment were alcohol and lack of money (search of work, lack of money for living, fear to lose job). This means that TB patients who end treatment early are the people that belong to vulnerable and socially nonadapted groups of population (unemployed, homeless, former convicts, alcohol addicts). These conclusions indicate to the necessity to introduce the programme of social support for TB patients for raising motivation to heal and follow the treatment regimen.

Second place hold people with early ending of treatment were patients who denied that they were ill (38,5 %). Such behaviour of patients is explained by the denial of their illness due to stigma, fear to lose job, and fear of discrimination in society. In this case the main role is played by insufficient information, disinformation from which stigma happens and who suffer such illnesses.

Study of factors that influence treatment of first diagnosed patients prompted search of means that would shorten early discharge of the patient and would be the basis for the development of the system of formation of the informational field of the patient. We have developed the material for education of TB patients «Cure — best prophylaxis in fighting TB». In the methodology the information is a factor of influence on the patient that has logical model of the disease for the patient. On a weekly basis the patients had classes 70 % of which was verbal education — provision of the information, and 30 % interactive communication — answering patients' questions, polling.

All the information was provided by verbal and visual means (visual materials, films, brochures). During every class questions about employment were discussed, discussions about family relationships were held. Before the studies the patients were tested with application of diagnostic complex to find patients with high risk of early ending of treatment. A group was singled out based on the scores with low disposition for treatment. These patients were dealt with on individual basis in the form of 10–15 min. conversations to retain the information.

The programme of teaching included general notions about the disease and detailed treatment questions, prophylaxis rules, behaviour of the patient in the hospital and in the family.

The comparative analyses of length of treatment were made according to standard regimens of chemotherapy. Such criteria were analysed: ending of treatment after 15 months, treatment efficiency, breaks in treatment, fatalities, and movement to other districts/oblasts.

While providing informational aid to patients the length of treatment is shortened. The number of patients who completely fulfilled treatment with period up to 7 months was higher in the patients who had individual education (43,5 %) in comparison with the patients of another group (32 %).

Efficiency of treatment in 9–15 months was also higher in patients who were educated on individual basis.

The treatment was efficient with cessation of bacterial discharge and cure of pulmonary tissue destruction in 87,9 % of patients of the first group at the moment of the end of course of treatment and 63,1 % — in the second.

Therefore, the educational work with the patients has positive influence on the decrease of early ending of treatment. The analysis of the results of the introduction of the system of informational influence demonstrated its high efficiency in the increase of the level of knowledge in the patients about their disease that led to the increase of the number of patients who regularly receive anti TB therapy and the decrease of patients who were discharged early.

The questions of hospitalization of bacillar patients, making them keep the regimen, not to smoke, drink alcohol, take drugs, not to leave the hospital is very important today when there is medication resistant TB. The patients who broke their treatment and then return to hospital are in such state that the costs for treatment are very high and non affordable and it is difficult to treat such patients. During time when they are out of hospital they spread infection and infect with more virulent (as they are in weakened body) and resistant to antibacterial treatment mycobacteria and accordingly the number of patients with primary resistance to antibacterial medications. Therefore it is necessary to take into account epidemiological danger that the patients pose.

Monitoring multiresistance over 2009–2011 demonstrated that most patients with this form of disease is seen in patients with broken treatment (43,3 %) and patients with failed repeated course of chemotherapy (up to 88,8 %).

We have conducted analysis of data about sensitivity of mycobacteria to anti TB medications with suspicion of multiresistant TB and unknown sensitivity of an agent to anti TB medications (multiresistance is established after medication sensitivity to mycobacteria test).

Almost half of the patients (44,2 %) of multiresistant TB resistance of TB mycobacteria due to resistance apart from the main anti TB medications (isoniazid, rifampicin, streptomycin — in 53,5 % of the patients, pyrazinamide — 27,9 % of the patients, etambutol — 32,6 % of the patients. Relatively low level of resistance to mycobacterial medications to Canamicin (K), and etionamide (Et) — 2,3 % and 1,6 % among the patients under study. Analysing the results of the treatment it turned out that with the stabilization of pulmonary process and ending of discharge of mycobacteria in patients with multiresistant pulmonary TB 72,1 % (31) of patients were discharged from hospital. 19,4 % (6) patients among them over some time repeated the course due to acute disease. Two patients (4,7 %) were discharged with postmortem epicrisis. 10 patients violated the regimen i.e. 23,2 % of patients were with low disposition to treatment. Among the group of patients bacterial discharge stopped only in 29 %, when at the time with patients with high disposition to treatment it made 72,1 %.

Therefore having analysed above mentioned information, we singled out the following strategies to increase patients' readiness with low disposition for treatment: assessment of knowledge of the patients in respect to their disease and understanding to treat it; assessment of worries of the patient in respect to therapy, quick reaction to false ideas and stereotypes; assessment of motivation and readiness for treatment before beginning and regularly after the beginning of treatment; discussion of strategy of treatment understandable for the patient that he/she is ready to keep to, working out the plan for specific scheme of treatment taking into account food and daily schedule; information of the patient about typical side effects, be ready for their appearance and their treatment; regular assessment of psychological health, existing problems and deviations from norm subject to professional treatment before conducting TB treatment.

It is necessary to provide detailed information for the patients and their relatives about TB, ways of infection, main diagnostic methods and principles of treatment with mandatory explanation of the necessity of long term treatment with standard period, without omissions of anti TB doses even under conditions of good wellbeing and stop of bacterial discharge that is a prerequisite of cure against TB and reason to stand long exhausting treatment. In conversation with the patient stress the unfavourable forecast for life and work ability in case of poor disposition for treatment. It is necessary to explain the mechanisms of resistance to anti TB medications and the necessity to apply the main prophylaxis — controlled treatment, provide information about anti TB medications used in regimens, possible side effects and in case they happen necessity to correct such side effects by symptomatic means but not ending anti TB medications administration. It is also important to conduct explanatory work with the family and relatives of the patient to help with the information, correct false ideas, improve psychological climate, organization of support. Appoint patients with bacterial discharge and without in a different cell that meets the requirements of infection control and provides positive examples for patients about possibility to cure TB and stipulates the desire of the patients to get in a «clean» zone and reach healing.

#### Conclusions:

1. Persons with asocial behaviour with pulmonary TB are a contingent that influence the formation the source of TB infection as the majority do not keep to the main course of anti TB therapy. If the main course of treatment is followed improvement in 70,6 % of patients is achieved. Understanding the problems which the TB patient faces during chemotherapy may improve the organization of anti TB help of the patients.

2. Among the patients who end treatment early considerable part make vulnerable and socially non adapted groups of people: 68,2 % — unemployed, 56,2 % — use alcohol, 35,1 % — former convicts, 5,1 % — homeless. Peculiarities of psychological and social status influence disposition to treatment.

3. System of informational teaching of the patients allows to increase the level of their awareness up to 92 % at test stage compared with 55 % for traditional system of information. It is proven that system of informational influence on the patients first diagnosed with pulmonary TB allowed to decrease the number of patients breaking the regimen of hospitalization 2,5 times, increasing the treatment effectiveness with cure of cavities of destruction and smear-negative pulmonary TB by means of bacterioscopy.

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### **ПОКАЗАТЕЛИ МЕТАБОЛИЗМА ОКСИДА АЗОТА В ЭРИТРОЦИТАХ БОЛЬНЫХ ЭРИТРЕМИЕЙ**

**Ёлкина Н. М.**

КФ ЗНУ, г. Симферополь, Россия

Кафедра физического воспитания, спорта и здоровья человека

Показано, что в эритроцитах больных эритремией наблюдаются изменения в системе синтеза оксида азота, которые ведут к преобладанию неокислительного, аргиназного метаболизма над окислительным, NO-синтазным метаболизмом L-аргинина и к ограничению накопления NO-анионов. Вместе с этим, прослеживается увеличение содержания в эритроцитах высокомолекулярных продуктов нитрозилирования, что может влиять на структурно-функциональное состояние эритроцитарных протеинов.

### **INDEXES OF NITRIC OXIDE METABOLISM IN ERYTHROCYTES OF PATIENTS WITH ERYTHRAEMIA**

**Yolkina N. M.**

CF ZNU, Simferopol, Russia

Physical education, sports and health department

Elucidation of the molecular basis of various diseases and pathological states of human organism is one of the most significant problems of medicine and biology. It is known, that the ways of production of free radicals of oxygen and nitric oxide are closely binded. The synthesis of nitric oxide over standard level may causes nitrosative stress, that is binded with active forms of nitric oxide, for example, peroxinitrite and nitric dioxide. The formation of nitrosothiols is one of the markers of nitrosative stress also.

Given that in some diseases erythrocytes are involved in pathological process, the aim the present work was to study the indexes of the system of nitric oxide synthesis and nitrosylation in erythrocytes under erythraemia.

The materials for the study were the erythrocytes of healthy subjects (control group) and patients with erythraemia. The erythrocytes were hemolised by distilled water [2]. In hemolisesates of erythrocytes was

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