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Результати. Встановлено, що обстежені хлопці відзначали дещо кращий ступінь контролю БА порівняно з дівчатами-однолітками при опитуванні за ACT-тестом, середні результати якого в першому випадку становили 17,9±0,5 бала, а в другому – 16,4±0,7 бала (р>0,05). Потреба в застосуванні ситуаційної бронхорозширювальної терапії в хлопців виявилася дещо меншою (3,5±0,1 бала), ніж у дівчат-підлітків (3,0±0,2 бала; р<0,05). Кращою в хлопців виявилася самооцінка контролю БА й за опитуючим GINA (8,5±0,2 проти 9,0±0,3 бала; р=0,05). Встановлений статистично достовірний ризик досягнення контролю над перебігом БА в хлопців становили: співвідношення шансів 2,8 (95% ДІ 1,1-7,1), абсолютний ризик 23 %, відносний ризик 1,5 % (95 % ДІ 1,1-1,9). Проте в хлопців достовірно частіше траплялися позитивні (54,7 проти 26,0 %) та сумнівні (23,8 проти 7,1 % відповідно; р<0,05) результати прик-тестів із пилковими алергенами.

Висновки. Таким чином, у хлопців-підлітків при опитуванні за тестами ACT і GINA відзначається кращий рівень контролю БА порівняно з дівчатами-однолітками, проте внутрішньошкірні алерготести частіше супроводжуються позитивними результатами, що потрібно враховувати при складанні індивідуальних планів лікувально-профілактичних заходів у разі астм у підлітковому віці.

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**Hematological Parameters of Pulmonary Tuberculosis Patients with Insulin Resistance**

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**The aim** of present study was to assess hematological parameters of pulmonary tuberculosis patients with insulin resistance in comparison with pulmonary tuberculosis patients without insulin resistance.

**Materials and methods.** Fifty six patients aged 20-60 years with newly diagnosed pulmonary tuberculosis were recruited from the Kharkiv Regional Antituberculosis Dispensary № 1. Group I consisted of 36 patients who had HOMA index <2.7; Group II – 20 patients who had HOMA index >2.7. We excluded from the study those, who had drug-resistant TB, body mass index over 25 kg/m2 and comorbid diseases (HIV/AIDS, DM, liver diseases, cancer diseases, alcohol consumption). Clinical examination, chest radiography, sputum examination were performed and hematological parameters were determined.

**Results.** Men prevailed in both groups (group 1-83.3 %; group 2-90 %). Most IR-patients were identified with bilateral damage of the lung tissue and large cavities (70%), while among non-IR-patients prevailed one-side infiltrative changes of the lungs (55.5 %). The median value of serum hemoglobin level was significantly (p<0.05) higher in IR-patients when compared with non-IR-patients (159 vs 133 g/L, respectively). The median of red blood cells count was also increased significantly among IR-patients (4.9 vs. 4.1 × 10¹² cells/L, respectively) (p<0.05). We didn't find statistically significant differences between IR- and non-IR-patients in median values of erythrocyte sedimentation rate (13 vs 16.5 mm/hr) and white blood cells count (6.0 vs 6.6 × 10⁹ cells/L).

**Conclusion.** According to our results, pulmonary tuberculosis patients who have insulin resistance, characterized by increase of serum hemoglobin level and red blood cells count which could be the body's compensatory response to bilateral specific inflammation and disintegration of pulmonary tissue.

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**Study of Insulin Resistance in Drug-Susceptible Pulmonary Tuberculosis Patients before and during Antitubercular Therapy**

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**Aim** The study was performed to reveal initial insulin resistance in drug-susceptible newly diagnosed pulmonary tuberculosis patients and to evaluate its dynamics during the first month of antitubercular therapy.

**Materials and methods.** The study was performed on 45 patients aged 20-60 years (34 men (75.5 %) and 11 women (24.5 %)) with new cases of pulmonary TB. Group I – 25 non-insulin resistant patients (HOMA-IR index × 2.7); Group II – 22 insulin resistant patients (HOMA-IR index × 2.7). The excluded criteria were: drug-resistant TB, body mass index × 25 kg/m2, comorbid diseases (HIV/AIDS, DM, liver diseases, cancer diseases, and alcohol consumption). Patients
were treated with standard treatment four-component scheme (Isoniazid, Rifampicin, Ethambutol and Pyrazinamide).

Results. Baseline median fasting insulin level in non-IR-patients was 7.95 mcU/ml and we found it not significant increase after 30 days of ATT (up to 11.85 mcU/ml). At the same time, we revealed a significant increase (p<0.05) in the median fasting insulin level in IR-patients (26.92 mcU/ml) and its rapid decrease after 30 days of ATT (8.69 mcU/ml). After a month of ATT, in seven patients (31.81 %) the IR index still exceeded the norm and five patients (21.73 %), who had normal initial HOMA-IR value, subsequently developed IR with a tendency to dyslipidemic changes. We found an increase in the medians of following indicators at a statistically significant level (p<0.05) during the treatment: total cholesterol – 4.2 vs 5.05 mmol/L, triglycerides – 1.26 vs 1.28 mmol/L; low-density lipoprotein-cholesterol – 2.42 vs 3.34; atherogenic index of plasma – 2.79 vs 3.06.

Conclusion. The phenomenon of insulin resistance development during antitubercular therapy is accompanied by a tendency to dyslipidemia and deserves more attention for further detailed study.

Biochemical Parameters and Quality of Life of Patients on the Background of Anti-Tuberculosis Treatment

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Background. Ensuring patient adherence to treatment is an important factor in the effective treatment of tuberculosis. Patient's adherence to treatment depends a lot on the quality of life during treatment.

The purpose of the study was to find the relationships between changes in biochemical parameters and the quality of patients' life on the background of anti-TB treatment.

Materials and methods. 26 patients with drug-susceptible pulmonary tuberculosis were included in the study. The patients were treated in Kharkiv regional TB dispensary No 1 during 2019. Biochemical parameters (levels of total protein, total cholesterol, total bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), creatinine, urea, glucose, thymol test) were evaluated in the patients at the beginning of treatment, in one month and in 2 months after treatment onset. The quality of life was assessed using the SF-36 questionnaire according to the following parameters: physical functioning (PF), role-physical functioning (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role-emotional functioning (RE), mental health (MH). Statistical data processing was performed using Microsoft Excel 2010 and STATISTICA 8.

Results. In studied parameters, ALT, AST, and GH had significant changes on the background of anti-TB treatment for 2 months. Thus, the ALT level first increased from 1.04±0.52 μmol/L to 1.22±0.34 μmol/L, and then decreased to 0.93±0.26 μmol/L (p<0.05). AST levels increased from 0.68±0.14 μmol/L to 1.34±0.12 μmol/L, and then decreased to 0.67±0.18 μmol/L (p<0.05). These fluctuations were accompanied by a similar dynamics of GH, which decreased from 20.04±3.20 to 17.56±3.55, and then increased to 26.10±3.80 (p<0.05). Some correlations were also found: negative average strengths between VP and AST (-0.56), RE and AST (-0.55), MH and thymol test (-0.67), RP and ALT (-0.53), SF and ALT (-0.58), as well as strong between VP and thymol test (-0.89) and RE and ALT (-0.82) (p<0.05).

Conclusions. The dynamics of ALT, AST, and general health parameters allows us to suggest that the greatest manifestation of hepatotoxic reactions is observed by the end of the first month of anti-TB treatment, which entails a decrease in the overall assessment of the health by patients. During this period, there is a high risk of treatment interruption as patients can think that the treatment worsens their condition. By the end of the second month of treatment, ALT and AST are decrease, which is probably due to the adaptation of the body, as well as the widespread use of hepatoprotective therapy in patients. The general health index increases and reaches values higher than at the beginning of treatment, which is associated with a decrease in hepatotoxic manifestations and relief of bronchopulmonary and general intoxication syndromes, which are usually observed by the end of the second month of treatment. The negative correlation between biochemical parameters, namely, liver function tests and various indicators of physical and mental functioning prove that a decrease in the manifestations of hepatotoxicity improves the quality of patients' life, increases their assessment of the treatment effectiveness and can reduce the percentage of treatment interruptions.