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**Association of interleukin-2 gene polymorphisms with patients on multi-drug resistant tuberculosis**

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Background and objective: To study association of IL-2 gene polymorphisms with patients on MDRTB.

Methods: The study comprised 170 individuals in Kharkiv region of Ukraine including 74patients pulmonary MDRTB (group 1), 66 patients without-MDRTB (group2) and 30healthy donors (group3).Serum level of IL-2 was evaluated by ELISA(pg/L).Polymorphic variant were examined: T-330G region of IL-2gene.

Results: In the 1st group the level of IL-2 was 39.34±1.14, 2nd -36.20±0.89 while in 3rd group this value was 21.60±0.80(p<0.05 between the groups).In patients with MDR TB the heterozygous TG genotype (79.73±4.67%(N=59)) was higher than: 10.81±3.61%(N=8) of patients had homozygote GG and ТТ (9.46±3.40% (N=7)) genotype. In patients 2nd group the homozygote GG genotype (65.15±5.87%(N=43)) was higher than: 19.70±4.90%(N=13) of patients had heterozygous TG and homozygote ТТ genotype had 15.15±4.41%(N=10).In contrast, most of healthy donors had homozygous ТТ genotype with 60.00±8.94%(N=18) and low frequency of heterozygous TG 16.67±6.80%(N=5) and GG genotype 23.34±7.72%(N=7) (p<0.05 between the groups). Following a 2 month treatment, there was a significant reduction of cytokine levels in the IL2: 1stgroup (32.85±1.11) and 2nd group (25.27±0.65) (p<0.05 between the groups), when compared to the beginning of therapy and after 2 months (p<0.001).

Conclusion: Compared to healthy controls patients with tuberculosis had significantly high level of IL-2.This coincided with greater frequency of heterozygous TG genotype in 1st group and homozygote GG genotype in 2nd group polymorphism T-330G genes of IL-2. Further studies are warranted whether higher rate of MDRTB has a causal immunogenetic relationship to polymorphism of genes encoding for IL-2 than patients without MDRTB.

Standard 2-month TB therapy results in reversal of inflammation characterized by decrease in IL-2 to the level comparable to healthy donors. IL-2 are immune correlates of treatment outcome and can help to identify better strategy for TB management. TB chemotherapy may have immunomodulatory effect of anti-inflammatory nature.