

[PA4535] Smoking as a risk factor which activates IL-2 gene polymorphism in patients with MDR-TB

*Dmytro Butov,<sup>1</sup> Mykhaylo Kuzhko,<sup>2</sup> Nataly Makeeva,<sup>3</sup> Tetyana Butova.<sup>4</sup> <sup>1</sup>Phthysiology and Pulmonology, Kharkiv National Medical University, Kharkiv, Ukraine <sup>2</sup>Phthysiopulmonology, National Institute on Phthysiatry & Pulmonology Named by F.G. Yanovsky NAMS of Ukraine, Kiev, Ukraine <sup>3</sup>Pediatrics N<sup>o</sup>2, Kharkiv National Medical University, Kharkiv, Ukraine <sup>4</sup>Internal Medicine N<sup>o</sup>3, Kharkiv National Medical University, Kharkiv, Ukraine*

**Background.** Determine IL-2 gene polymorphism (PM) in smokers with MDR-TB in lungs on the background of the respective cytokine production of blood. **Methods.** The study included 170 people in Kharkiv region of Ukraine including 60 patients with MDR-TB and smoking (1<sup>st</sup> group (g)), 36 without MDR-TB and smoking (2<sup>nd</sup> g), 14 with MDR-TB and non-smoking (3<sup>rd</sup> g), 30 without MDR-TB and non-smoking (4<sup>th</sup> g) and 30 healthy donors (5<sup>th</sup> g). Studied promoter region T-330G of IL-2 gene. **Results.** In the 1<sup>st</sup> g the levels of IL-2 were (41.24±1.21), 2<sup>nd</sup> – (39.81±1.17), 3<sup>rd</sup> – (31.19±1.90), 4<sup>th</sup> – (31.87±0.84) and 5<sup>th</sup> – (21.60±0.80) pg/L. Differences between groups were significant (p<0.001). Normal homozygote genotype IL-2 predominated in 5<sup>th</sup> g was 60% compared to patients with TB: 1<sup>st</sup> g – 5%, 2<sup>nd</sup> – 13.89%, 3<sup>rd</sup> – 14.29% and 4<sup>th</sup> – 16.67%. Heterozygous genotype IL-2 was observed in 76.67% in 1<sup>st</sup>, 45.71% in 2<sup>nd</sup>, 35.71% in the 3<sup>rd</sup>, 13.33% in 4<sup>th</sup> and 16.66% in 5<sup>th</sup> g. Mutation homozygous genotype IL-2 was 18.33% in the 1<sup>st</sup> g, in 2<sup>nd</sup> – 41.67%, 3<sup>rd</sup> – 50%, 4<sup>th</sup> – 70% and 5<sup>th</sup> – 3.34%. Differences between the 1<sup>st</sup> and 3<sup>rd</sup>, 2<sup>nd</sup> and 4<sup>th</sup>, TB patients and 5<sup>th</sup> g were significant (p<0.05). **Conclusion.** Smoking contributes to significant activation PM T-330G gene IL-2 heterozygous type that may lead to changes in the immune system making susceptible to MDR-TB. Compared to healthy controls patients with TB had significantly increased levels of serum IL-2. This coincided with greater frequency of heterozygous PM T-330G of IL-2 gene. In addition, these studies revealed a significant influence of the PM T-330G gene IL-2 (with PM IL-4 and IL-10 genes, which we also studied) on the changes in the population of Th-lymphocytes, clinical symptoms, relapse of TB, formation of destructions in the lung, which may affect treatment outcomes in patients with MDR-TB.

**Date/Time:** Tuesday, September 29, 2015 - 2:45 pm

**Room:** Room G102-103