INF-γ AND IL-2 ASSES THE THERAPEUTHIC RESPONSE IN ANTI-TUBERCULOSIS PATIENTS AT JAMOT HOSPITAL YAOUNDE, CAMEROON, 2021

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Abstract:

Background: Tuberculosis (TB) is one of the top lethal infectious diseases worldwide. In recent years, interferon-γ (INF-γ) release assays (IGRAs) have been established as routine tests for diagnosing TB infection. However, produced INF-γ assessment failed to distinguish active TB (ATB) from latent TB infection (LTBI), especially in TB epidemic areas. In addition to IFN-γ, interleukin-2 (IL-2), another cytokine secreted by activated T cells, is also involved in immune response against *Mycobacterium tuberculosis*. The aim of the study was to assess the capacity of IFN-γ and IL2 to evaluate the therapeutic response of patients on anti-tuberculosis treatment. **Material and Methods**: We conducted a cross-sectional study in the Pneumonology Departments of the Jamot Hospital in Yaoundé between May and August 2021. After signed the informed consent, the sociodemographic data as well as 5 mL of blood were collected in the crook of the elbow of each participant. Sixty-one subjects were selected (n= 61) and divided into 4 groups as followed: group 1: resistant tuberculosis (n=13), group 2: active tuberculosis (n=19), group 3 cured tuberculosis (n=16) and group 4: presumed healthy persons (n=13). The cytokines of interest were determined using indirect Enzyme-linked Immuno-Sorbent Assay (ELISA) according to the manufacturer's recommendations. *P-values* < 0.05 were interpreted as statistically significant. All statistical calculations were performed using SPSS version 22.0 **Results**: The results showed that men were more 14/61 infected (31,8%) with a high presence in active and resistant TB groups. The mean age was 41.3±13.1 years with a 95% CI = [38.2-44.7], the age group with the highest

infection rate was ranged between 31 and 40 years. The IL-2 and INF-γ means were respectively 327.6±160.6 pg/mL and 26.6±13.0 pg/mL in active tuberculosis patients, 251.1±30.9 pg/mL and 21.4±9.2 pg/mL in patients with resistant tuberculosis, while it was 149.3±93.3 pg/mL and 17.9±9.4 pg/mL in cured patients, 15.1±8.4 pg/mL and 5.3±2.6 pg/mL in participants presumed healthy ($p < 0.0001$). Significant differences in IFN-γ and IL-2 rates were observed between the different groups. **Conclusion**: Monitoring the serum levels of INF-γ and IL-2 would be useful to evaluate the therapeutic response of anti-tuberculosis patients, particularly in the both cytokines association case, that could improve the accuracy of routine examinations. **Keywords**: Antibiotic therapy, Interferon Gamma, Interleukin 2, Tuberculosis

Biography:

MEMBANGBI Alexandra Emmanuelle, PhD student (2nd year in Doctorate), Department of Microbiology, Faculty of Sciences, University of Yaoundé 1. I am specialized in Medical Microbiology. The thematic of my thesis is "**Monitoring of the effectiveness of antibiotic therapy and the ethnobotanical approach by the production of cytokines in patients with tuberculosis".** The area of my study is based on Immunology of respiratory infections especially interaction between Human and *Mycobacterium tuberculosis*, asses to identify the cytokines that could be used to monitor patients on anti-tuberculosis drugs. I am also a part time lecture in the University of Yaoundé 1 and at the High Institute of Biological and Applied Sciences, where I lead practical courses in general microbiology, in-depth immunology, bacteriology and virology and teach general Microbiology and Immunology. In the Laboratory, I am contributed to supervision of Master's students of the research team. Nowadays I am doing an internship at the Pneumology, Department of the Jamot Hospital in Yaoundé, a reference center for respiratory diseases in Cameroon for the collection of my samples as part of my research work.

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Research Interest: Infectious diseases