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Latent Tuberculosis in patients treated due to lung cancer

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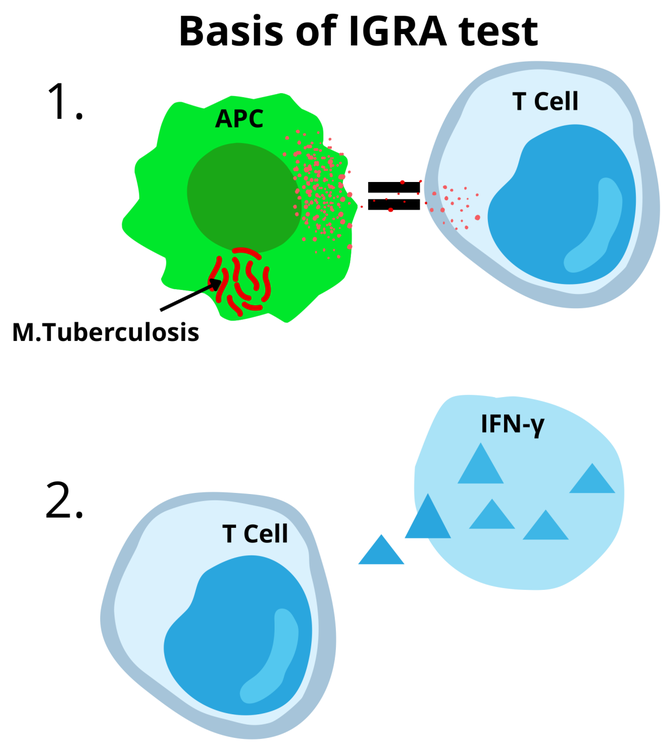
Introduction

The study aims to understand the impact of latent tuberculosis on the outcomes of systemic treatment due to lung cancer and the effect of systemic treatment on the transition from latent infection to active tuberculosis. Additionally, the study may reveal correlation between the presence of latent infection of Mycobacterium tuberculosis and the histopathological type of lung cancer and existance of predicting factors crucial during planing systemic treatment. Latent tuberculosis is a state in which the host's immune system can control the M. tuberculosis infection but cannot eradicate it. Latent infection is asymptomatic and infected individuals are not capable of transmitting the infection to others. According to WHO estimations about 1/4 of the global population is infected by Mycobacterium tuberculosis.

Methodology

- The study includes patients with lung cancer, regardless of histopathological type, qualified for systemic treatment.
- The presence of latent tuberculosis will be tested using the IGRA test (Quantiferon TB Gold Plus). The IGRA test measures the concentration of IFN- secreted ex vivo after incubation of blood with proteins specific for M. Tuberculosis.
- Control group consist of patient starting systemic treatment with negative IGRA test.
- Patients will be observed for a maximum period of 2 years or until death. Clinical evaluation for the activation of latent infection and response to treatment will be assessed during subsequent hospitalizations and additionally by radiological evaluation according to the established treatment regimen or drug program.



Hypothesis

The research hypothesis concludes that the presence of latent tuberculosis affects therapeutic outcomes in patients treated for lung cancer. An additional assumption is the potential influence of systemic treatment on the transition from latent to active infection.

Results

Since February 2024, nearly half of the patients included in the study have tested positive for latent tuberculosis in the IGRA test, without specifying the dominant histopathological type. All patients remain under systemic treatment without symptoms of progression of the lung cancer or activation of tuberculosis.

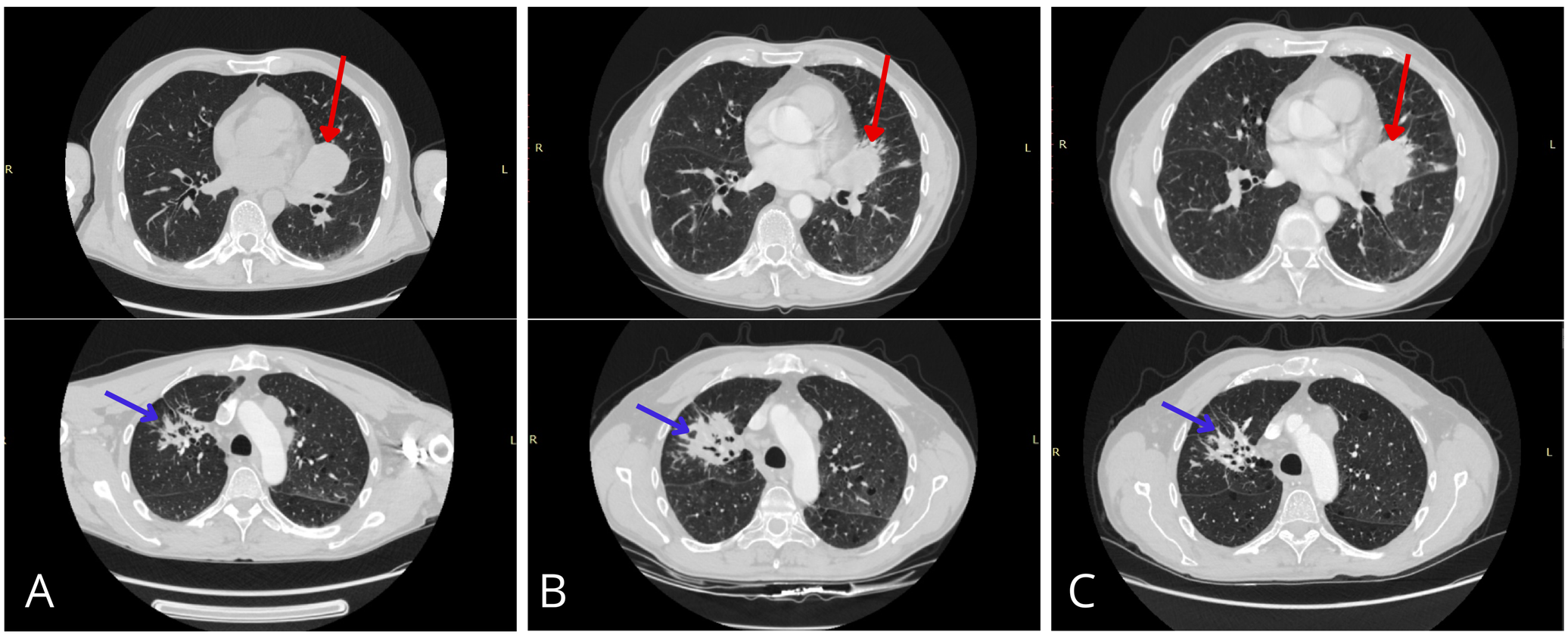


Fig. 1 CT scans of patient with lung adenocarncinoma during immunotherapy (pembrolizumab). (A) CT from 20/01/23 (before treatment) Target lesion (red arrows) and lesion described as post-inflammatory (blue arrows) in the upper right lobe (stable for a year). (B) CT from 02/02/24 Regression of target lesion. Progression of lesions in upper right lobe, described by Radiologist as progression of cancer. (C) CT from 24/04/24 during anti-TBC treatment: Stable target lesion, lesions in upper right lobe, with tendency to regress.

Perspectives

Therapeutic strategies such as chemotherapy, immunotherapy and targeted therapy have improved lung cancer treatment, but they are associated with significant impacts on the patient's immune system. The results obtained during the study may be used to improve planning, controlling and, consequently, the outcomes of lung cancer treatment.