GENE EXPRESSION OF TRYPTOPHAN ASPARTATE COAT PROTEIN AS A BIOMARKER OF THE INFECTION STATUS IN TUBERCULOSIS PATIENTS

A B S T R A C T

Tuberculosis (TB) remains a major cause of morbidity and mortality worldwide. *Mycobacterium tuberculosis* as a cause of tuberculosis disease is an intracellular pathogens that survives within the phagosome of host macrophages. Several host factors which are involved in this process, among others are typtophan aspartate containing coat protein (TACO). TACO is a protein recruited and retained by living *Mycobacterium tuberculosis* on the surface of the phagosome membrane to maintain its survival in phagosome, because the presence of TACO plays an important role in inhibiting the fusion of phagosomes and lysosomes. Several rapid tests to diagnose active tuberculosis cases, such as Tuberculin Skin Test (TST) and Interferon Gamma Releasing Assay (IGRA) only check the patient's immunological status but can not be used as a marker to differentiate the activity rate of tuberculosis infection.. Therefore, we hypothesized there was a difference in TACO expression on the surface of the phagosome membrane at the stage of TB infection. And we found that there was a significantly difference among the 5 groups of samples, there was a significantly difference from TACO protein expression between new TB patients and patients after 2 months of therapy, there was a significantly difference from TACO protein expression between new TB patients and patients after 5 months of therapy, there was no significantly difference from TACO protein expression among TB patients after 2 months of therapy with patients after 5 months of therapy, there was a significantly difference from TACO expression between new TB patients with latent tuberculosis (LTBI) infection patients, which is significantly from TACO expression in new TB patients with healthy people, there is a significantly difference from TACO expression in patients with latent tuberculosis (LTBI) infection with healthy people. However, when analyzed per group of samples and saw from the mean of each group, research results obtained from this study do not match with the existing theory that living *Mycobacterium tuberculosis* in the phagosome will retain TACO on the surface of the phagosome membrane. This fact is because of *Mycobacterium tuberculosis* may have other self-defense mechanisms, one of which is short interfering RNA (siRNA) which will interfere the mRNA target so that protein expression does not occur. So these results suggest that TACO protein can not be considered to be a biomarker in the determination of infection status in tuberculosis patients and monitoring treatment results of Anti Tuberculosis Drugs (OAT).

Keywords: TACO, RT-PCR, *Mycobacterium tuberculosis*, LTBI, phagosome.