

ABSTRACT

The effect of consuming synbiotic and nutrients supplement on immune response, nutritional status and sputum smear conversion among adult Pulmonary Tuberculosis patients
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Pulmonary tuberculosis (PTB) infection is the most prevalent of communicable diseases in the world and Indonesia is one of 22 countries which highest prevalence of PTB disease. Based on Surkesnas (Indonesia national health survey) years of 2004, prevalence of PTB disease among population more than fifteen years of age in Indonesia is 240/100,000 (or 0.24%) using sputum smear examination (MOH, 2006). Patients usually have poor nutritional status (loss of body weight, low of plasma zinc concentration and low of plasma retinol concentration) and low body immune (low of IFN- γ blood concentration). One study in an unselected US cohort of patients diagnosed with tuberculosis, 45% lost weight and 26% had anorexia (Miller et al, 2000). Some researches had evidence that intervention using standard PTB drugs, addition of vitamin A and zinc, and supplementary feeding improved clinical recovery to PTB disease (Karyadi et.al, 2002, Patton et al, 2004 and Alisjahbana, 2007). However, the treatment with antibiotics and immunocompromised status can all contribute to disruption of colonizing microbes (Sanders, 2000). The micro biota has a positive impact on immune regulatory functions of the gut and disruption of these immune regulatory functions by an imbalanced micro biota may lead to exacerbated effectors response and chronic inflammatory disease (FAO/WHO, 2001). Several studies have shown that cytokines production by cells of the immune system can be activated probiotic use (Erickson, 2000). Among the most predominant microbes in the human intestinal tract is gram-positive lactic acid producing genera *Lactobacillus* and *Bifidobacterium* (Gill and Cross, 2002).

The study objective is to analyze the efficacy synbiotic and nutrients supplement on immune response; nutritional status and sputum smear conversion among adult pulmonary TB patients. Double blind, treatment-control trial community study design will be chosen, and subjects divide into two groups. First group will receive synbiotic and nutrients supplement (treatment group), and second group will receive placebo. Assessment of research parameters will be conducted in three phases i.e. before intervention, at the end of intensive phase (2nd mo) and at the end of follow-up phase (6th mo).

Methods to measure the main study parameters consist of (1) semi quantitative food frequency questionnaire to assess food intake (2) anthropometrics measurement to measure BMI and weight gain (3) blood examinations to analyze serum vitamin A and serum zinc concentration and immune parameter (4) and fecal specimen to examine colony of gut microflora (probiotics). Using *SPSS for windows* will perform descriptive and statistical analysis.