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**RESPON IMUN SELULER PENDERITA TUBERKULOSIS PARU  
SETELAH SUPLEMENTASI SENG, LISIN, DAN VITAMIN A**

**Rita Ismawati, S.Pd, MKes**

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**ABSTRAK**

Tuberkulosis seringkali ditemukan bersamaan dengan kondisi malnutrisi, yaitu defisiensi gizi makro dan mikro. Dalam keadaan normal gizi dapat tercukupi dari makanan sehari-hari, tetapi dalam kondisi kemiskinan dan penyakit kronis tidak semua komponen gizi dapat terpenuhi, untuk itu diperlukan suplementasi zat gizi agar kebutuhan gizi terpenuhi, baik makronutrien maupun mikronutrien.

Penelitian ini bertujuan untuk meningkatkan respon imun seluler (jumlah TCD4+ dan kadar INF- $\gamma$ ) penderita tuberkulosis paru melalui suplementasi seng, lisin dan vitamin A. Pemeriksaan jumlah sel TCD4 dengan flowcytometri, sedangkan pemeriksaan kadar INF- $\gamma$  dengan Elisa. Penelitian ini dilakukan di Rumah Sakit Paru (BP4) Surabaya, dengan jumlah sampel sebanyak 30 orang penderita tuberkulosis paru BTA+ baru. Sampel dibagi menjadi 3 kelompok, yaitu kelompok 1 diberi OAT+(seng, lisin), kelompok 2 diberi OAT+(seng, lisin, vit.A), dan kelompok 3 kontrol/plasebo. Desain penelitian menggunakan Randomized *Controlled Trial Pre Test-Post Test Control Group Design*, dengan pemberian perlakuan secara *Double Blind*.

Hasil penelitian menunjukkan bahwa pemberian suplemen seng, lisin, dan vitamin A yang dilakukan setiap hari pada penderita tuberkulosis paru selama 3 bulan dapat meningkatkan jumlah sel TCD4 secara bermakna ( $p=0,040$ ;  $\alpha=0,050$ ), dan meningkatkan kadar INF gamma secara bermakna ( $p=0,036$ ;  $\alpha=0,050$ ). Hasil penelitian ini diharapkan dapat memberi sumbangan dalam tata laksana pengobatan pasien tuberkulosis paru, bahwa selain diberi Obat Anti Tuberkulosis (OAT), juga harus diperhatikan pemberian tambahan suplementasi seng, lisin, dan vitamin A.

**CELLULAR IMMUNE RESPONSE OF PULMONARY TUBERCULOSIS  
PATIENT AFTER SUPPLEMENTATION WITH ZINC, LYSINE, AND  
VITAMIN A**

By:  
Rita Ismawati

**ABSTRACT**

Tuberculosis is still often found at the same time as malnutrition's condition, that is deficiency between macro and micro nutrient. Under normal circumstances be adequate nutrition from food everyday, but in conditions of poverty and chronic malnutrition not all components can be met, it is necessary for nutrient supplementation that nutritional needs are met, both macronutrient and micronutrient.

This research aims to enhance the cellular immune response (+ TCD4 number and levels of INF- $\gamma$ ) pulmonary tuberculosis through supplementation of zinc, lysine and vitamin A. Examination of the number of cells with flowcytometri TCD4, whereas the levels of INF- $\gamma$  examination by Elisa. The

research was conducted at the Hospital Lung (BP4) Surabaya, with a total sample of 30 people with pulmonary tuberculosis BTA + new. The samples were divided into 3 groups, namely the one given OAT + (zinc, lysine), group 2 was given OAT + (zinc, lysine, vit.A), and group 3 control / placebo. The study design used Randomized Controlled Trial Pre-Test Post Test Control Group Design, with the provision of treatment in Double Blind.

The results showed that supplementation of zinc, lysine, and vitamin A are performed daily in patients with pulmonary tuberculosis for 3 months can increase the number of cells TCD4 significantly ( $p = 0.040$ ;  $\alpha = 0.050$ ), and increased levels of IFN gamma were significantly ( $p = 0.036$ ;  $\alpha = 0.050$ ). The results of this study are expected to contribute to governance patient treatment of pulmonary tuberculosis, that in addition to the Anti-Tuberculosis Drug (OAT), also be aware of the provision of additional supplementation of zinc, lysine, and vitamin A.

