

ABSTRACT**The Role Of Zinc Sulphate And Omega-3 In Improving Body Weight, Albumin Level, Increasing T-Lymphocytes CD-4 Cells, And Accelerating Sputum Conversion On Pulmonary Tuberculosis Patients In Paru Hospital Surabaya**

The epidemiology of Tuberculosis (TB) showed that TB is a disease which is associated with malnutrition. Malnutrition and lacking of certain essential nutrients required by immune system might cause immune function deficiency resulting higher susceptibility to bacterial and viral infections. There is positive correlation between immune system and high nutrient contents, such as Vitamin C, zinc, and antioxidants that brings good effect on infections, including Tuberculosis. One of the efforts conducted to help promoting improving weight and accelerating sputum conversion on pulmonary tuberculosis patients is through zinc and sulphate provision followed by Omega-3 supplementation. This study was conducted in 2015 aimed to analyze the role of Zinc Sulphate Omega-3 provision in improving body weight, albumin level, increasing T-lymphocytes CD-4 cells, and accelerating sputum conversion on pulmonary tuberculosis patients in Paru Hospital Surabaya. This study applied randomized study design using Pre-test and Post-test Control group design on patients suffering pulmonary tuberculosis. This study was conducted by administering Zinc Sulphate and Omega-3 on treatment group and placebo on the control group. The samples of this study consisted of 20 pulmonary tuberculosis patients divided into two groups: treatment group and control group. Each group consisted of 10 patients. Statistical analysis was conducted using paired T-test, Kruskal wallis and Mann-Whitney test. There was significant difference in body weight ($p = 0.021$) with strong correlation (0.989) in treatment group before and after Zinc Sulphate and Omega-3 supplementation. Meanwhile in control group, there was significant difference in body weight ($p = 0.285$) with lower correlation, namely 6.89. The results of paired t-test showed that there was significant difference on treatment group before and after the provision of zinc in terms of albumin level ($p = 0.001$) and there was no significant difference (in terms of albumin level) on the control group ($p = 0.224$). The result of Kruskal wallis test on treatment group indicated significant difference in terms of Acid-Fast Bacillus (AFB) before and after Zinc Sulphate and Omega-3 supplementations with significance rate 0.000, while the significance rate of the control group was 0.041. Conclusion: Zinc Sulphate and Omega-3 provision plays a significant role in improving body weight and albumin level, increasing the amount of CD-4-lymphocytes and accelerating sputum smear conversion in the AFB of pulmonary tuberculosis patients. There was significant body weight difference before and after the provision of Zinc Sulphate and Omega-3 (as indicated by improved amount of CD-4 lymphocytes) on pulmonary tuberculosis patients. The effect was also signified by increasing albumin level of pulmonary tuberculosis patients. The result of AFB test on pulmonary tuberculosis patients receiving Zinc Sulphate and Omega-3 treatment also showed positive

results. Overall, the average results of the treatment group were greater compared to the control group.

Keywords: AFB test, Body Weight, Omega-3, Pulmonary Tuberculosis, Zinc Sulphate

