



Study of the Effect of Green Tea Extract as an Iron Chelating Agent in Tuberculosis Adjunct Therapy

Eghtesadi. S

Azad University, Iran

Abstract:

Green tea with possessing iron chelating properties can be useful in TB treatment and management. We studied the effect of green tea consumption on iron status and improving process of pulmonary tuberculosis treatment (accelerating the negative sputum smear, reducing the level of oxidative stress). Following the approval by Ethics Committee for Human Studies of Golestan and Tehran Universities of Medical Sciences and also obtaining the written consent of patients, this double-blinded randomized clinical trial study, was conducted on patients with TB, who were assigned randomly to the intervention group (41 patients) receiving 500 mg catechin of green tea extract and the control group (39 subjects) receiving placebo for two months, since the beginning of concomitant anti-TB treatment. Sputum evaluation was carried out on three slides using the Ziehl Nelson method. At first, the demographic and dietary intake data were obtained. After obtaining 10 ml of venous blood, Hemoglobin (Hb), Transferrin, Ferritin, Total iron binding capacity (TIBC), Iron and Serum malondialdehyde (MDA) were measured at the beginning and end of the study. Sputum samples were collected from the third week (every 10 days) and the reduction of microbial load was also tested until sputum smear became negative. Data were processed using independent and paired t-test, McNemar, Wilcoxon, Kaplan-Meier, Log-rank test and Cox regression model. P-value was taken significant as <0.05 . Average daily energy intake of patients was 1518 ± 431 kcal, distribution of which was as follow: carbohydrates (58%), protein (17%) and fat (22%). Vitamin D and Zinc intake of patients were less and iron intake was higher than the DRI. Weight changes in both groups of placebo and green tea had tendency of increase with a significant difference at two and six months follow ups ($p \leq 0.0001$). There was just a 9.2 nmol/ml difference between the two groups for MDA at the beginning of study, which was not statistically significant ($p=0.078$) whereas, it was increased to 24.8 nmol/ml after the intervention, indicating a significant difference ($p < 0.001$). The decline value was estimated -45.45 ± 14.69 nmol/ml for catechin group and -19.91 ± 18.38 nmol/ml for placebo group. In conclusion green tea can systematically reduce the inflammatory elements and oxidants (decrease of MDA as fatty acids oxidation indicator), and consequently, can improve the hematopoiesis and hemoglobin level. Therefore, localized inflammation and damage



in the lung is reduced, and adjunct to antimicrobial therapy, accelerate sputum smear conversion, disease amelioration and treatment improvement. Finally, given the higher iron intake despite of lower micronutrients and macronutrients in diet of our patients, and considering the iron effect on mycobacterium survival and the incidence and exacerbation of inflammatory complications in patients, it seems that policy of mandatory flour fortification with iron, especially in provinces such as Golestan, must be viewed cautiously and its further implementation being revised meticulously.

Biography:

Shahryar Eghtesadi received Bachelor degree in Nutrition Science and Food Chemistry 1975, from Shahid Beheshti University of Medical Sciences, Tehran; MSPH degree in Nutrition, 1977, from Tehran University of Medical Sciences, Tehran and PhD from University of California at Davis (UCD), USA, in Nutrition (1985). He served as Visiting Scientist in USDA Human Nutrition Research Center on Aging (HNRCA), at Tufts University, Boston, USA (1994-1995); Full professor of Tabriz, Iran and Tehran Universities of Medical Sciences and currently serves as Professor of Azad University, Science & Research Branch.

Recent Publications:

1. Eghtesadi. S, Clin Nutr Res. 2020
2. Eghtesadi. S, Phytother Res. 2019
3. Eghtesadi. S, Mol Cell. 2019
4. Eghtesadi. S, Nanoscale. 2018

Webinar on Chinese and Traditional Medicine | October 12, 2020

Citation: Eghtesadi. S; Study of the Effect of Green Tea Extract as an Iron Chelating Agent in Tuberculosis Adjunct Therapy; Webinar on Chinese and Traditional Medicine; October 12, 2020