

## **Efficacy of Egg and Amla Supplement on Serum total Protein Levels of Patients Suffering from Pulmonary Tuberculosis**

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***Abstract-** This study investigated the efficacy of dietary supplementation of egg and amla on serum protein levels of patients suffering from pulmonary tuberculosis study. In this two randomized group design, experimental and control group consists of 100 adult patients suffering from pulmonary tuberculosis. The subjects belonging to experimental group were given supplementation of egg and amla for three months. The serum total protein levels of subjects was recorded prior to the commencement of study as well as after three months of study period. The result reveals that serum total protein levels of pulmonary tuberculosis patient belonging to experimental group has increased significantly as compared to their counterpart belonging to control group. It was concluded that dietary supplementation given to pulmonary tuberculosis patients in the form of egg and amla is useful in boosting their serum total protein levels.*

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**Keywords : Pulmonary tuberculosis, dietary supplementation, serum protein, egg, amla.**

**Introduction:** Tuberculosis, the great white scourge [(Khan, 1959) and John Bunyan's "Captain of all these men of death" (Heather Milburn, 2007) is a worldwide bacterial infection, sometimes acute but more often chronic, caused mainly by infectious organisms of the mycobacterium tuberculosis complex. Among communicable diseases, tuberculosis is the second leading cause of death worldwide. It has been widely accepted that tuberculosis leads to decrease in serum protein. Protein is an important constituent of tissue and cells of the body. They form the important component of muscle and other tissue and vital body fluids like blood. The proteins in the form of enzymes and hormones are concerned with a wide range of vital metabolic process in the body. Protein supply the body building material and make

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good the loss that occur due to wear and tear. Proteins, as antibodies, help the body to defend against infection. The nutritional status of pulmonary tuberculosis patients decreases during the disease which severely affects their muscle and immune response. It is important that dietary supplementation chalked out for tuberculosis patient be rich in food with protein and vitamin C. In this relation eggs and Amla may be the best combination. It has been reported in the past that eggs contains high quality protein and also promotes protein synthesis and maintenance of skeletal muscle mass Eggs are a good source of high-quality protein that promote protein synthesis and maintenance of skeletal muscle mass (Borsheim, 2002). On average, one large egg provides 6.3 g protein that is rich in essential amino acids (USDA, 2015). It was opined that Vitamin C reduces ferric to ferrous iron, and the ferrous ions react with oxygen to produce hydroxyl radicals, which are a type of reactive oxygen species. The hydroxyl radicals damage guanine residues in DNA, causing cell death (Vilcheze, 2013). Surprisingly supplementation of egg and Amla as part of overall dietary supplementation for patients suffering from pulmonary tuberculosis has not been studied on biochemical parameter namely serum total protein. Hence the present study was planned to find out the effect of dietary supplementation in the form of egg and amla on biochemical parameter namely serum total protein in patients suffering from pulmonary tuberculosis. So many researchers namely Ezekiel et al (2012), Rudolph et al. (2013), Bhargawa et al. (2013) Chitralkha Singroul Dr. Nanda gurwara(2015) studied the impact of dietary counselling on nutritional status of pulmonary tuberculosis patients they found counselling affect the nutritional status on pulmonary tuberculosis patient but so far no study has been conducted so far in which effect of egg and amla supplementation of certain duration was observed on serum total protein levels of pulmonary tuberculosis patients, hence the present study was planned.

**Objectives:** The main objective of the present study is to find out the efficacy of egg and amla supplementation on serum total protein levels of pulmonary tuberculosis patients.

**Materials and Methods:**

**Sample-** The study was conducted on 100 pulmonary tuberculosis patients in Raipur City. We recruited male patients aged between 25 to 50 years. The list of pulmonary tuberculosis patients was collected from different Hospitals in Raipur city. Sputum positive pulmonary tuberculosis patients were included in the study.

**Design :** Two randomized group design was used in the present study.

**Method and Procedure:** The study was conducted in 100 pulmonary tuberculosis patients. The samples were divided in two groups. Equal

number of subjects was assigned randomly in experimental and control group. Before dietary supplementation biochemical measurement was measured in both groups. Then in the first group we gave dietary supplementation [Egg and amla] for three months. The supplementation was not given to subjects belonging to control group. After tabulation of data, pre-post mean difference was obtained by paired sample 't' test while gain score (Post-Pre test) was compared with the help of independent sample 't' test. The results are presented in table 1 and 2.

### Result and Discussion:

**Table No. 1**  
**Pre Post Mean Scores on Serum Total Protein Level among Selected Pulmonary Tuberculosis Patients belonging to Experimental and Control Group**

Groups	Serum Total Protein Level		't'
	Pre Test Mean±S.D.	Post Test Mean±S.D.	
Experimental Group (N=50)	5.44 ± 0.82	6.45 ± 0.87	16.35**
Control Group (N=50)	5.67 ± 0.84	5.92 ± 0.81	9.55**

$t_{(df=99)} = 1.98$  at .05 level;  $t_{(df=99)} = 2.63$  at .01 level; \*\* Significant at .01 level

A perusal of table 1 indicate a significant increase in post test mean serum total protein level (M=6.45) among selected pulmonary tuberculosis patients belonging to experimental group as compared to their pre test mean serum total protein level (M=5.44). The calculated  $t=16.35$  is statistically significant at .01 level. Similarly findings were obtained for control group. A significant increase in post test measures on serum total protein level (M=5.92) occurred among subjects belonging to control group as compared to their pre test mean serum total protein level (M=5.67). The calculated  $t=9.55$  is statistically significant at .01 level.

To compare changes in pre-post test scores on serum total protein level between experimental and control group, gain scores was calculated and compared between these two groups with the help of independent sample 't' test. The same is depicted in table no. 2.

**Table No. 2**  
**Comparison of Gain Scores on Serum Total Protein Level between Experimental and Control Group**

Groups	N	Gain Score (Serum Total Protein Level)		Mean Difference	't'
		Mean	S.D.		
Experimental Group	50	1.01	0.43	0.75	11.39**
Control Group	50	0.25	0.24		

\*\* Significant at .01 level

$t(df=98)=1.97$  at .05 level, 2.62 at .01 level

The statistical calculation in terms of  $t=11.39$  shown in table 2 indicate a significant difference in mean gain scores between two groups. It shows that mean gain on serum total protein level is significantly higher in tuberculosis patients belonging to experimental group ( $M=1.01$ ) as compared to the pulmonary tuberculosis patients belonging to control group ( $M=0.25$ ).

**Conclusion:** In view of above it can be said that associated dietary supplementation of Amla and egg give additional nutrient boost in pulmonary tuberculosis patients with respect to their protein deficiency. Amla rich in vitamin C act against bacteria whereas supplementation of egg enhances serum total protein which may have resulted in improvement of nutritional biochemical markers of pulmonary tuberculosis patients belonging to experimental group as compared to patients of control group.

On the basis of results it was concluded that egg and amla supplementation of three months is beneficial in enhancing serum total protein levels of pulmonary tuberculosis patients. It also shows the benefits.

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