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Association of Lifestyle Changes with Biochemical Parameters of Pulmonary Tuberculosis Patients

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Abstract: ***The present study assessed the relationship between lifestyle changes and biochemical parameters in male tuberculosis patients. The population for the present study were male tuberculosis patients enrolled in various government hospitals in Raipur city. Out of these, 150 male subjects suffering from pulmonary tuberculosis were selected randomly. The age range of subjects was 25 to 50 years. Standard laboratory and clinical methods were used to assess serum albumin, globulin and serum total protein in selected male pulmonary tuberculosis patients. The subjects were counselled on better treat outcome with modified lifestyle. The result indicate significant and positive relationship between lifestyle changes and biochemical parameters namely serum albumin, globulin and serum total protein respectively. It was concluded that counselling about lifestyle modification should be incorporated in treatment regimen of tuberculosis for better outcomes.***
Keywords: Pulmonary Tuberculosis, Lifestyle modification, Biochemical Parameters

I. INTRODUCTION

According to WHO Global Tuberculosis Report (2015) 9.6 million incidences of cases reported of tuberculosis in 2014 and about 1.5 million people died from this disease all over the world. In 2015, a report on South East Asian Region of WHO documented around 4.5 million prevalent cases while 3.4 million incident cases were reported. About 450000 deaths were reported due to tuberculosis. Global burden of tuberculosis carry around 39% morbidity and 48% mortality with it. The situation is no different in India. It has been reported that roughly 40% adult population is infected with mycobacterium tuberculosis. Based on National survey for Annual Risk of Tuberculosis Infection (ARTI) which is 1.5%, the incidence of new smear positive tuberculosis cases in the country is estimated as 75 new smear positive tuberculosis cases per 100,000 populations. [Tuberculosis control in the South – East Asia Region-Annual TB Report 2015, WHO Regional office for South –East Asia]. After infecting with mycobacterium, 10% of total infected person are at risk of developing tuberculosis during their course of life. At present India have more people with active tuberculosis disease as compared to any other country in the world. Since time immemorial human race know the significance of healthy lifestyle for complete well-being. Last two to three decades have seen tremendous growth in research towards impact of lifestyle on various chronic diseases. A disciplined lifestyle has been advocated to fight against various viral and bacterial infections as well as reducing the chances of incidence of obesity, diabetes, hypertension, pulmonary diseases etc. Key factors in lifestyle modification includes exercise, diet modification, abstain from smoking and substance abuse and personal hygiene etc. It has been documented scientifically that simplest of exercise such as brisk walk for a period of 30-45 minutes / day may prevent the chances of number of chronic illnesses. Exercise augment functionality of heart and lungs, it aids tissue oxygenation and is beneficial for almost every part of human body. The healthy fatigue caused by exercise reduces the dose of sedative. "We must eat to live, not live to eat". This notion is used in connection with balance diet. Balanced diet is needed for normal body mass index and waist circumference. Balanced diet shuns accumulation of visceral fat. Visceral fat and abdominal obesity may invite several chronic diseases. Despite the importance of healthy lifestyle in management of diseases, this has not been scientifically documented in terms of its effect on biochemical parameters of tuberculosis patients. Hence the present study was planned to assess the relationship between lifestyle modifications with biochemical parameters of male tuberculosis patients.

II. REVIEW OF LITERATURE

So many researchers namely Ahmed et al. (2011), Gupta et al. (2011), Kolappan et al. (2013), Jethani et al. (2014), Tyagi et al. (2017), Goyal et al. (2017) investigated socio-demographic, biochemical and nutrition related correlated of tuberculosis apart from its prevalence in different parts of the country. Surprisingly impact of lifestyle modification has not been observed on biochemical parameters in patients suffering from tuberculosis. Since biochemical parameters are significant as far as treatment outcome is concerned, the researcher decided to work on this topic.

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III. OBJECTIVES

The main objective of the present study is to find out the effect of lifestyle changes on biochemical parameters of male tuberculosis patients.

IV. MATERIALS AND METHODS

A. *Sample*

The population for the present study were male tuberculosis patients enrolled in various government hospitals in Raipur city. Out of these, 150 male subjects suffering from pulmonary tuberculosis were selected randomly. The age range of subjects was 25 to 50 years.

B. *Tools*

1) *Biochemical Measurements:* Standard laboratory and clinical methods were used to assess serum albumin, globulin and serum total protein in selected male pulmonary tuberculosis patients. Blood sample was collected before the commencement of study period. Similarly blood sample was collected after the completion of study period. The samples were analysed in pathology lab and values as certified by pathologists were noted. Estimation of serum Total Protein and Serum Albumin were analyzed by Protein Analyzer Machine.

C. *Design*

A Correlational design was used in the present study.

V. METHOD AND PROCEDURE:

150 male pulmonary tuberculosis patients from different government hospitals in Raipur were randomly selected. A written consent was obtained from each subject that they are voluntarily participating in this study and no undue pressure was applied to them. Biochemical estimation of selected male tuberculosis patients was performed in pathology lab. The response on pre-tested lifestyle questionnaire was also obtained. The selected subjects were counselled about the benefits of healthy lifestyle with the help of posters and visual aid. They were counselled once every month regarding benefits of healthy lifestyles covering various aspects related to it. After three months data was again collected by method used in pre-test. Gain score was computed for lifestyle changes and biochemical parameters and correlated with the help of Pearson Correlation Coefficient. The results are presented in table 1 and 2. The results are presented in table 1 and 2.

VI. RESULT AND DISCUSSION:

The pre-post mean scores on lifestyle modification questionnaire and biochemical parameters are shown in table 1.

Table 1
Pre-post mean scores on selected study variables among
male pulmonary tuberculosis patients (N=150)

	Pre-test (Mean)	Posttest (Mean)	Mean Difference
Serum Albumin (g/dL)	3.09	3.79	0.69
Serum Globulin (g/dL)	2.64	2.94	0.30
Serum Total Protein (g/dL)	5.74	6.73	0.99
Lifestyle changes	34.61	41.70	7.08

The correlation between gain scores of lifestyle changes with that of biochemical parameters are shown in table 2.

Table 2
Relationship between Biochemical Parameters with Lifestyle Modification
among Male Tuberculosis Patients

	N	Albumin	Globulin	Total Protein
Lifestyle Modifications	150	.15*	.17*	.22*

* Significant at .05 level

r with df(148) = .149 at .05 level

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A perusal of entries shown in table 1 clearly indicate that changes in lifestyle modification yields positive results as far as increase in albumin, globulin and total protein is concerned. When correlation of gain score of lifestyle change was correlated with albumin, globulin and total protein, the resultant r=.15, r=.17, and r=.19 respectively indicate that positive lifestyle yields also reflects positively on biochemical parameters of pulmonary tuberculosis patients at .05 level of significance. It thereby indicates that step towards healthy lifestyle will also yield significantly better biochemical markers in male tuberculosis patients.

Healthy lifestyle includes abstaining from tobacco use or alcohol, personal hygiene, good food habits and regular exercise. Issues such as tobacco usage, eating habits, behaviour, alcohol consumption under lifestyle are linked to tuberculosis and modify lifestyle is advocated for tuberculosis by researchers such as Prasad et al. (2009), Singh et al. (2017), Amninder Kaur (2017) respectively.

VII. CONCLUSION

On the basis of results it may be concluded that meaningful counselling towards healthy lifestyle yields better outcomes in terms enhanced biochemical parameters of male tuberculosis patients.

VIII. RECOMMENDATIONS

It is recommended that data on factors related to lifestyle of tuberculosis patient is to be gathered and analysed. If lifestyle modifications are required than counselling can be arranged for those patients for better treatment outcomes.

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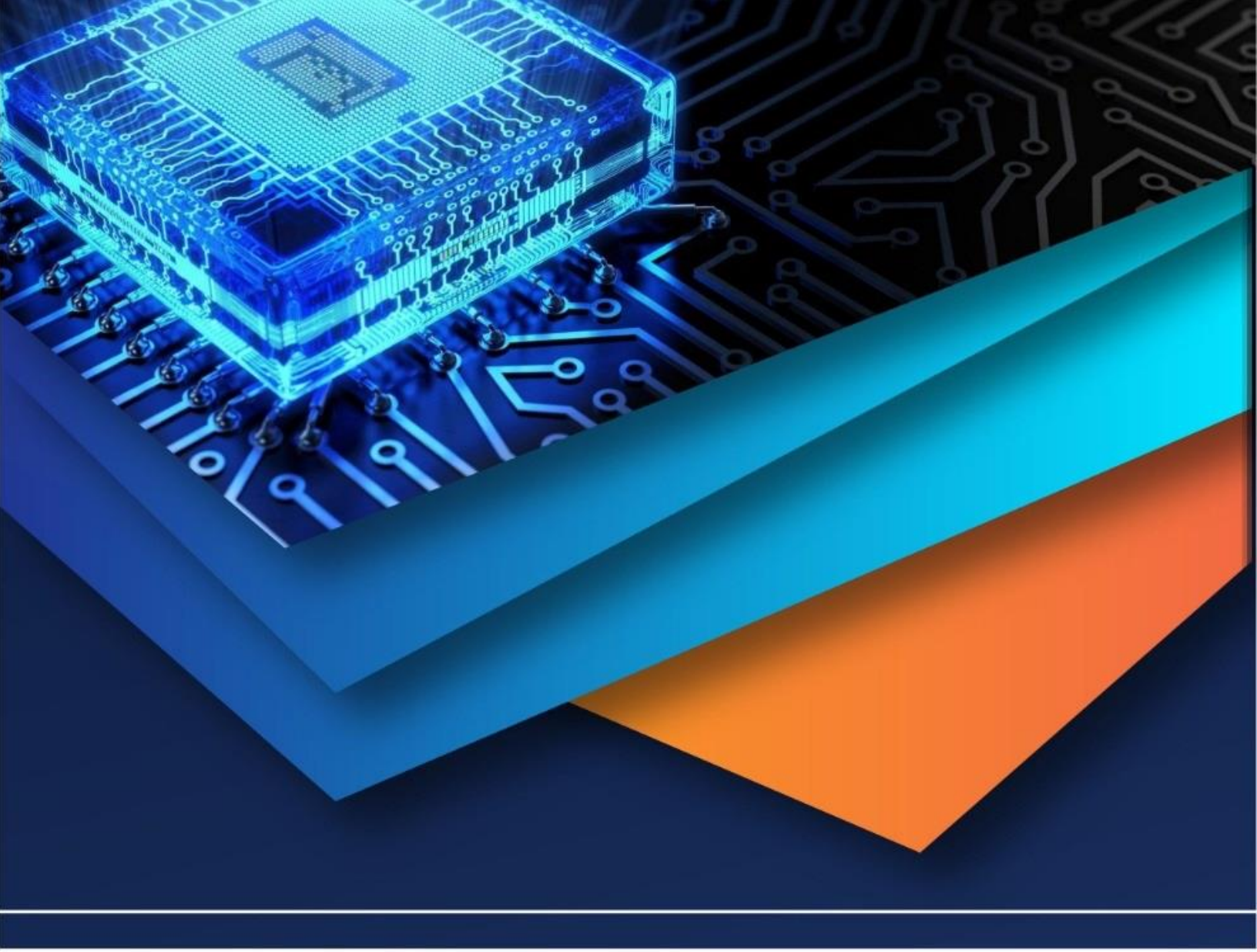
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