


[Home](#) > [Journal](#) > [Medicine & Healthcare](#) > [OJRD](#)
[Indexing](#) | [View Papers](#) | [Aims & Scope](#) | [Editorial Board](#) | [Guideline](#) | [Article Processing Charges](#)
[OJRD](#) > Vol.2 No.4, November 2012



## Correlation of Serum C-Reactive Protein with Disease Severity in Tuberculosis Patients

PDF (Size: 138KB) PP. 95-100 DOI: 10.4236/ojrd.2012.24014

### Author(s)

Mohammad Shameem, Nazish Fatima, Asrar Ahmad, Abida Malik, Qayyum Husain

### ABSTRACT

**Purpose:** To study the factors influencing sputum smear conversion including Serum C-Reactive Protein (CRP) and its correlation with disease severity in tuberculosis patients. **Method:** Levels of Serum-CRP concentrations were determined in 60 patients with pulmonary tuberculosis, 30 healthy volunteers and patients in follow-up after completion of antitubercular treatment (DOTS therapy). **Results:** Serum-CRP levels were found to be significantly higher in smear-positive group as compared with the follow-up patients and smear-negative control group. The values were  $43.65 \pm 23.68$ ,  $9.88 \pm 5.23$  and  $4.04 \pm 3.85$  mg/L respectively ( $P < 0.0001$ ). Among the smear-positive patients, Serum-CRP levels were the highest in AFB3 + patients ( $65.28 \pm 10.32$ ) as compared with the AFB2 + patients ( $35.93 \pm 7.22$ ), AFB1 + patients ( $16.37 \pm 2.62$ ) and AFB scanty patients ( $10.92 \pm 2.97$ ) respectively, the difference was found statistically significant ( $P < 0.0001$ ). Correlation of predictors of sputum smear conversion also revealed that these values were significantly higher in active pulmonary tubercular patients as compared to control. It is also found significant positive correlation between AFB smear positive patients with levels of Serum-CRP concentration. **Conclusion:** Serum-CRP levels are significantly correlated with disease severity in patients with active pulmonary tuberculosis. Thus these findings from the present study would certainly add new criteria for early diagnosis of TB, which may lead to development of new strategies to treat TB.

### KEYWORDS

Acid Fast Bacilli; Serum C-Reactive Protein; Tuberculosis; Directly Observed Therapy Short-Course

### Cite this paper

M. Shameem, N. Fatima, A. Ahmad, A. Malik and Q. Husain, "Correlation of Serum C-Reactive Protein with Disease Severity in Tuberculosis Patients," *Open Journal of Respiratory Diseases*, Vol. 2 No. 4, 2012, pp. 95-100. doi: 10.4236/ojrd.2012.24014.

### References

- [1] "WHO Global Tuberculosis Control Report 2010. Summary," *Central European Journal of Public Health*, Vol. 18, No. 4, 2010, p. 237.
- [2] A. Domínguez-Castellano, M. A. Muniain, J. RodríguezBaño, M. Garcia, M. J. Rios, J. Galvez and R. Perez-Cano, "Factors Associated with Time to Sputum Smear Conversion in Active Pulmonary Tuberculosis," *The International Journal of Tuberculosis and Lung Disease*, Vol. 7, No. 5, 2003, pp. 432-438.
- [3] M. D. Epstein, N. W. Schluger and A. L. Davidow, "Time to Detection of Mycobacterium Tuberculosis in Sputum Culture Correlates with Outcome in Patients Receiving Treatment for Pulmonary Tuberculosis," *Chest*, Vol. 113, No. 2, 1998, pp. 379-386. doi:10.1378/chest.113.2.379
- [4] R. Vidal, N. Martín-Casabona and A. Juan, "Incidence and Significance of Acid-Fast Bacilli in Sputum Smears at the End of Antituberculous Treatment," *Chest*, Vol. 109, No. 6, 1996, 1562-1565. doi:10.1378/chest.109.6.1562
- [5] R. Singla, M. M. Osman and N. Khan, "Factors Predicting Persistent Sputum Smear Positivity among Pulmonary Tuberculosis Patients 2 Months after Treatment," *The International Journal of Tuberculosis and Lung Disease*, Vol. 7, No. 1, 2003, pp. 58-64.

[OJRD Subscription](#)
[Most popular papers in OJRD](#)
[About OJRD News](#)
[Frequently Asked Questions](#)
[Recommend to Peers](#)
[Recommend to Library](#)
[Contact Us](#)

Downloads:	5,319
Visits:	33,060

[Sponsors >>](#)

- [6] D. A. Mitchison, " Assessment of New Sterilizing Drugs for Treating Pulmonary Tuberculosis by Culture at 2 Months," *The American Review of Respiratory Disease*, Vol. 147, No. 4, 1993, pp. 1062-1063.
- [7] L. P. Ormerod, O. R. McCarthy, R. M. Rudd and N. Horsfield, " Short Course Chemotherapy for Pulmonary Tuberculosis," *Respiratory Medicine*, Vol. 85, No. 4, 1991, pp. 291-294. doi:10.1016/S0954-6111(06)80099-5
- [8] F. C. Warring Jr. and U. Sutramongkole, " Nonculturable Acid-Fast Forms in the Sputum of Patients with Tuberculosis and Chronic Pulmonary Disease," *The American Review of Respiratory Disease*, Vol. 102, No. 5, 1970, pp. 714-724.
- [9] Z. Liu, K. L. Shilkret and H. M. Ellis, " Predictors of Sputum Culture Conversion among Patients with Tuberculosis in the Era of Tuberculosis Resurgence," *Archives of Internal Medicine*, Vol. 159, No. 10, 1999, pp. 1110-1116. doi:10.1001/archinte.159.10.1110
- [10] D. R. Burwen, A. B. Bloch, L. D. Griffin, et al., " National Trends in the Concurrence of Tuberculosis and Acquired Immunodeficiency Syndrome," *Archives of Internal Medicine*, Vol. 155, No. 12, 1995, pp. 1281-1286. doi:10.1001/archinte.1995.00430120062008
- [11] W. S. Tillet, W. F. Goebel and O. T. Avery, " Chemical and Immunological Properties of a Species Specific Carbohydrate of Pneumococci," *The Journal of Experimental Medicine*, Vol. 52, No. 6, 1930, pp. 895-900. doi:10.1084/jem.52.6.895
- [12] H. Peltola, M. L. Laipio and M. A. Siimes, " Quantitative C-Reactive Protein (CRP) Determined By an Immunoturbidimetric Method in Rapid Differential Diagnosis of Acute Bacterial and Viral Diseases of Children," *Acta Paediatrica Scandinavica*, Vol. 73, No. 2, 1984, pp. 273-274. doi:10.1111/j.1651-2227.1984.tb09944.x
- [13] S. W. Chensue, M. P. Davey, D. G. Remick and S. L. Kunkel, " Release of Interleukin-1 by Peripheral Blood Mononuclear Cells in Patients with Tuberculosis and Active Inflammation," *Infection and Immunity*, Vol. 52, No. 1, 1986, pp. 341-343.
- [14] A. K. Agarwal, " Social Classification: The Need to Update in the Present Scenario," *Indian Journal of Community Medicine*, Vol. 33, No. 1, 2008, pp. 50-51. doi:10.4103/0970-0218.39245
- [15] M. Uotila, E. Ruoslahti and E. Engvall " Two-Site Sandwich Enzyme Immunoassay with Monoclonal Antibodies to Human Alpha-Fetoprotein," *Journal of Immunological Methods*, Vol. 42, No. 1, 1981, pp. 11-15. doi:10.1016/0022-1759(81)90219-2
- [16] C. M. Choi, C. I. Kang, W. K. Jeung, et al., " Role of C-Reactive Protein for the Diagnosis of Tuberculosis among Military Personnel in South Korea," *The International Journal of Tuberculosis and Lung Disease*, Vol. 11, No. 2, 2007, pp. 233-236.
- [17] M. Kannapiran, C. Immanuel, P. V. Krishnamurthy, et al., " C-Reactive Protein Levels in Patients with Pulmonary Tuberculosis," *Lung India*, Vol. 7, No. 1, 1989, pp. 34-36.
- [18] E. Garcia-Pachon, M. J. Soler, I. Padilla-Navas, et al., " C-Reactive Protein in Lymphocytic Pleural Effusions: A Diagnostic Aid in Tuberculous Pleuritis," *Respiration*, Vol. 72, No. 5, 2005, pp. 486-489. doi:10.1159/000087672
- [19] R. Baynes, W. Bezwoda, T. Bothwell, Q. Khan and N. Mansoor, " The Non-Immune Inflammatory Response: Serial Changes in Plasma Iron, Iron-Binding Capacity, Lactoferrin, Ferritin and C-Reactive Protein," *Scandinavian Journal of Clinical & Laboratory Investigation*, Vol. 46, No. 7, 1986, pp. 695-704. doi:10.3109/00365518609083733
- [20] F. C. de Beer, A. E. Nel, R. P. Gie, P. R. Donald and A. F. Strachan, " Serum Amyloid A Protein and C-Reactive Protein Levels in Pulmonary Tuberculosis: Relationship to Amyloidosis," *Thorax*, Vol. 39, No. 3, 1984, pp. 196-200. doi:10.1136/thx.39.3.196