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Title: Supplementation of N-acetylcysteine as an adjuvant in treatment of newly diagnosed pulmonary tuberculosis patients: A prospective, randomized double blind, placebo controlled study

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Body: BACKGROUND: Pulmonary tuberculosis (PTB) is associated with significant increase in lipid peroxidation and decreased glutathione. It is reported that N-acetylcysteine could be effective in conditions with such oxidative stress. However, there are no clinical studies to show its efficacy in PTB patients. Hence this study. OBJECTIVE: To investigate if supplementation of N-acetylcysteine (NAC) adjuvant to DOTS-1 regimen reduces the oxidative stress in these patients and has a beneficial treatment outcome. Also to co-relate glutathione levels with correction of immune dysregulation in pulm.tuberculosis and role of glutathione in immunopathogenesis of PTB. MATERIAL & METHOD: Prospective, randomized, double-blind, placebo controlled study in patients with newly diagnosed sputum positive PTB, divided into 2 groups. Gr.A (n=33) received tablet NAC 600mg while Gr.B (n=34) received placebo, two times a day for 2 months (intensive phase of chemotherapy). Both the study groups received (DOTS category I). 48 patients completed study. RESULTS : NAC significantly caused early sputum negativity (p=0.0019), radiological improvement (p<0.05) and reduced DTH response (p=0.003). Serum Glutathione peroxidase levels were significantly (p<0.001) higher in NAC group than in placebo group. Co-relation is seen in the severity of disease and low Glutathione peroxidase levels. CONCLUSION: NAC as an adjuvant appears to be an effective agent in terms of early bacteriological and radiological improvement in treatment of pulm.tuberculosis. Its antioxidant and immunological effect are contributory in early clinical cure in these patients.