

Changes in the level of nitric oxide blood at patients with pulmonary multi-drug resistant tuberculosis in the process of chemotherapy

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Background. There is a paucity of published data on the effect of tuberculosis (TB) chemotherapy on nitric oxide (NO) synthesis and metabolism in newly diagnosed and relapsed patients with or without multi-drug resistant tuberculosis (MDR-TB).

Methods. The pattern of NO response in 140 patients with pulmonary TB, including 74 with MDR-TB and 66 without MDR-TB has been studied and compared to the NO status of 30 healthy donors. Patients comprised those with newly diagnosed TB and recurrent or relapsed TB. The NO status was assessed by measuring inducible NO synthase (iNOS) and nitrites and nitrates levels. This was measured prior to treatment initiation and two months after the prescribed chemotherapy.

Results. Increased levels of NO indices were found in patients with tuberculosis when compared to healthy controls. After two months of chemotherapy a significant decrease in NO indicators was observed in the patients with TB, particularly in those without MDR-TB and newly diagnosed TB. The decline in NO activity was less prominent in patients with recurrent TB and MDR-TB, which suggests lower level of immunologic and reparative processes in such patients.

Conclusion. Changes in serum levels of nitrites and nitrates as well as iNOS activity in neutrophils may serve as diagnostic criteria to differentiate various clinical forms of TB and help as prognostic tool to predict treatment outcome.