

## Influence of neonatal BCG vaccination and environmental mycobacteria in sensitizing the anti-mycobacterial activity of macrophages

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An immuno-epidemiological study was performed to evaluate the effect of neonatal BCG vaccination and tuberculin response on macrophage killing profile against *Mycobacterium tuberculosis*. In this epidemiological field work, the study subjects were drawn from in and around Chennai city, South India. The descriptive epidemiological pattern of neonatal BCG vaccination and its impact on tuberculin skin test were studied. The study subjects for the immunological laboratory experiments were recruited based on the skin test (Mantoux) outcome, and were grouped in to four natural study groups which include vaccinated reactors, vaccinated non-reactors, non-vaccinated reactors and non-vaccinated non-reactors. In immunological laboratory work part, the elucidation of macrophage killing profile was studied for all the four groups and appropriate inter-comparisons were made. The parameters used for the macrophage killing profile were; (i) Glutathione assay, (ii) Measurement of phagocytosis, (iii) Intracellular growth kinetics of *Mycobacterium tuberculosis* H37Rv, (iv) Tumor necrosis factor- $\alpha$  assay, and (v) Interferon- $\gamma$  assay. The results found, in the BCG vaccinated tuberculin reactors the macrophage responses were significantly higher than the BCG vaccinated tuberculin non-reactors. There was no significant difference in the responses among the BCG vaccinated tuberculin reactors when compared to the non-vaccinated tuberculin reactors. The immune responses of non-vaccinated tuberculin reactors were significantly higher than the vaccinated tuberculin non-reactors. These findings show that the immune response among the adolescents/young adults is elicited by exposure to mycobacteria and not by the neonatal BCG vaccination.

**Keywords:** BCG vaccine, glutathione, IFN- $\gamma$  macrophage, *Mycobacterium tuberculosis*, phagocytosis, TNF- $\alpha$  and intracellular growth kinetics.

### Biography

Mathan Periasamy has completed his Ph.D. degree from The Tamil Nadu Dr. M.G.R. Medical University, Chennai, India. He is having more than ten years in teaching and his field of interest is Microbiology and Immunology. He has received several awards in international and national conference presentations.

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