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Leprosy is one of the most challenging disease known today, ranking concern in its damage and lack of its adequate knowledge but even more challenging because of what leprosy does to its victims physically, socio-economically and psychologically.

It is a disease of great antiquity. The leper has for centuries been a social outcast, partly, from biblical times. He was regarded as unclean and partly because his repulsive appearance and disabilities prevented him from being an acceptable member of the community.

Hatred and ostracism cause concealment of the disease on the part of patients until it becomes too obvious. In doing so, the sufferer unintentionally helps to exaggerate the disease in himself as he remains without any treatment. Consequently disease takes lesser time in becoming acute enough to manifest itself too obviously in the patient. Even by this time he would have infected many other persons in his community.

The total number of leprosy cases in the world are estimated to be approximately 12 million. The figure for India being about 4.0 million patients. It is widely
distributed in all parts of this country. Causative organism of this disease is Mycobacterium leprae bacilli which was recognised by Hansen in 1874.

Leprosy involves the skin, peripheral nerves and nasal mucosa but is capable of infecting any tissue or organ. Clinically leprosy is manifested in two main clinical forms, lepromatous leprosy and tuberculoid leprosy and these two types represent the opposite poles—lack of resistance and presence of resistance in host respectively. Thus realising the importance of host immune status, an immunological approach may help in proper pathogenesis, diagnosis, control and prevention of leprosy. Ridley and coworkers (1966) have provided nomenclature, in the form of a system of diagnostic classification that is fundamental to most current immunological investigations.

As an elaboration of polar concept. Ridley and Jopling (1966) first proposed a system of five membered classification. They retained the traditional tuberculoid pole (TT), lepromatous pole (LL) and borderline (BB) group, but added two intermediary categories, borderline with tuberculoid features (BT) and borderline with lepromatous features (BL) — TT, BT, BB, BL, LL, thus, comprise a spectrum in continuity. They also explained that each stage in spectrum was determined by the result of host
response to antigen of Mycobacterium leprae. Patients with BL have more immunity against Mycobacterium leprae than do the LL but less than patients with BT and TT. So it indicates that TT patients have highest and LL have lowest immunity.

The tuberculoid type of leprosy is seen in patients with high degree of resistance. The skin lesions are few and sharply demarcated, consisting of macular anaesthetic patches. Nasal involvement occurs early and may be profound leading to deformities particularly of hands and feet. Bacilli are scanty in lesions and infectivity is minimal, cell mediated immunity is inadequate and lepromin test is positive.

The lepromatous type host resistance is low. The bacilli are seen in large numbers on globi inside lepra cells or extra cellular superficial nodular lesion. Bacilli invade the mucosa of nose, mouth and upper respiratory tract. The eyes, testes, kidney and Bones are also involved. The lepromatous type is more infective than other. Cell mediated immunity is deficient and lepromin test is negative.

Present study has been undertaken to assess the cellular immunity in different types of leprosy patients. The tests, which were taken in assessment, were status of T-cell and B-cell in peripheral blood.
It has been observed that leprosy patients commonly get the acute exacerbation occurring in the otherwise chronic course of the infection. This sudden spurt is quite distinct from the normal progression of the disease process. This sudden exacerbation of the disease is designated as reaction. The T and B cell levels in leprosy reaction cases and leprosy non reaction cases have been also assessed to signify the role of immunity in reaction in various types of leprosy.