Comparative Study between Non lethal and Lethal Strains of plasmodium yoelii with reference to its Immunological Aspect.

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Abstract:

Innate immunity has an important role in the protection against malaria. To clarify its effect on non lethal and lethal strain of Plasmodium yoelii, comparison between two groups of C57BL/6 mice infected with 104 parasitized RBCs was performed. Liver and spleen mononuclear cells were isolated and analyzed by flow cytometry. The parasite appeared in blood on day 3 in both strains, with non lethal infection parasitemia reached a peak of 60% on day 14 and mice completely recovered, while in lethal infection parasitemia was 80% on day 7 and mice succumbed to death. In non lethal strain, mice became anemic and the hematocrit percentage returned to its normal value during recovery, while in the lethal strain mice were severely anemic before death. The major expanding cells were found to be TCR Intermediate (TCRint) cells, mainly NK1.1-subset, these TCRint cells were distinguished from conventional T cells of thymic origin. CD4- & CD8- cells increased in both strains. During malarial infection, the population of conventional T cells did not increase and usually associated with thymic atrophy. The present results showed that TCRint cells were intimately associated with the protection against malarial infection in both non lethal and lethal strains but the mice died in lethal infection due to the massive destruction of red blood cells leading to fatal anemia.

Abbreviations: TCRint cells: intermediate T cell receptor cells; TCRhi cells: high T cell receptor cells; NKT cells: natural killer T cells.

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