

Abstract

Cell-mediated immunity induced by rabies vaccination was studied in humans by the determination of specific interleukin-2 (IL-2) production in a large number of donors (postexposure immunized patients and pre-exposure immunized laboratory workers). Peripheral blood lymphocytes (PBL) from 35 donors were tested for IL-2 production after in vitro stimulation by different rabies and rabies-related viruses. IL-2 responses were compared to antibody recognition of these different virus serotypes by sera from the same individuals. IL-2 was produced by PBL from more than 85% of donors after stimulation with inactivated and purified rabies viruses (IPRV) prepared from either Pittman Moore (PM) or Pasteur Virus (PV) strains. IL-2 was also produced by 65 and 45% of donor PBL stimulated with IPRV from the European Bat Lyssavirus (EBL) and Mokola (Mok) rabies-related virus strains respectively. No correlation was found between the production of IL-2 by PBL and the levels of virus neutralizing antibody (VNAb). Moreover, 50, 25 and 35% of donors produced IL-2 after stimulation of their PBL with ribonucleoprotein (RNP) from PV-, EBL- and Mok-viruses, respectively. These results obtained with a large number of human rabies vaccinees and using an assay specific to T-cell activation confirm the significant cross-reactivity of T-cell responses directed against rabies and rabies-related viruses. This study shows that IL-2 production could be used for the study of cell-mediated immunity and T-cell memory induced in humans by rabies vaccination.