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THE USE OF DIPHTHERIA AND TETANUS TOXOIDS TO ASSESS CELL-MEDIATED IMMUNITY (CMI)

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689 THE USE OF DIPHTHERIA AND TETANUS TOXOIDS TO ASSESS CELL-MEDIATED IMMUNITY (CMI). Stanley P. Galant, Natalie Flod, Irene Shimizu, Gale A. Granger. (Spon. by Thos. L. Nelson). Univ. of Calif., Irvine, Calif. College of Medicine, Univ. of Calif. (Irvine) Affiliated Hospitals, Dept. of Peds., Irvine, Calif.

In a previous study, we demonstrated that diphtheria-tetanus (DT) toxoids produce positive cutaneous delayed hypersensitivity (CDH) in the immunized child regardless of age. In this study, we compare the CDH response to DT and T toxoids with in vitro parameters of CMI: lymphocyte DNA synthesis and leukocyte inhibition factor (LIF) in five immunized adults. Cord blood lymphocytes were used as controls for each assay. A dose response with both toxoids compared the CDH reaction with each in vitro assay, establishing the maximum response and threshold dose which gave a positive response. All subjects had a positive CDH response to both antigens ($\geq$5mm induration at 48 hours), positive DNA synthesis (stimulation index above 3) and LIF release (migration $\leq$ 80%), while cord blood lymphocytes were usually negative to all in vitro assays. The subjects with the largest CDH reactions generally had the greatest lymphocyte DNA synthesis and lowest threshold doses. DNA synthesis was approximately ten times as sensitive an assay as CDH and 10^5 times as sensitive as the LIF technique. No difference in sensitivity was noted between DT and T toxoids. We conclude that the CDH response with either toxoid in the concentrations used is a good indicator of CMI in the immunized individual. These toxoids are particularly valuable for evaluating CMI in the young child.