

Abstract

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Correlation of immunologic and nutritional status with infectious complications after major abdominal trauma.

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OBJECTIVE: Examination of the response of injured patients' lymphocytes to the mitogen phytohemagglutinin in a defined medium provides a mechanism to define the relationship between alteration in immune function and septic complications.

METHODS: Lymphocytes from 30 victims of gunshot wounds to the abdomen were examined. Response to mitogen was measured by incorporation of [3H]-thymidine as a function of lymphocyte concentration, with a constant amount of mitogen phytohemagglutinin and a standard incubation period. A saturation curve was obtained, and lymphocyte response was expressed as the concentration necessary for half-maximal incorporation of radioactive label, $L1/2$. Lymphocyte transformation was compared with that found in a group of 50 healthy volunteers.

RESULTS: On arrival in the emergency center, the in vitro lymphocyte response of patients was markedly diminished. There were seven patients for whom a lymphocyte curve could not be generated, i.e., $L1/2$ greater than 1×10^6 . For the other 23 patients, $L1/2 = 4.75 \times 10^5$ (SEM - 7.5×10^4) compared with $L1/2 = 1.5 \times 10^5$ (SEM - 5×10^4) for normal volunteers (p less than 0.01). Measurement of skin test response, white blood cell count, anthropometric measurements, and albumin level were not predictive of patient course.

CONCLUSIONS: In contrast the in vitro lymphocyte viability corresponded to the degree of injury, and recovery of lymphocyte function was associated with improvement in the patient's clinical course.

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