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Anergy Testing in Patients with Head and Neck Cancer

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SUMMARY Patients with head and neck cancer were found to be deficient in total T cells, but the reasons why the patients became anergic were not clear. Possible explanations include a change in T-lymphocyte numbers, particularly the helper/suppressor T-cell ratio, with the cause of this change still unknown. Tumor immunosuppressing factors and cancer–induced immunosuppression are proposed to be such causes. The deficiency of T cells resulted in an impaired cell-mediated immune response (CMIR), which lowered the host resistance, such facilitating the tumor to spread. As the CMIR can be evaluated by delayed hypersensitivity skin testing (= anergy screen), the objective of this study was to compare the CMIR function of patients with head and neck cancer to a non-cancer control group using this anergy screen. The study group consisted of 20 patients (17 males, 3 females, age range 10-76 years) with head and neck cancer, which were anti-HIV negative and had not received any therapy yet. The control group consisted of another 20 persons (17 males, 3 females, age range 21-72 years) without any cancer and who were also anti-HIV negative. Exclusion criteria were (1) eczema or skin disease in the area to be tested, (2) having received oral prednisolone within the last week and (3) an anti-HIV positive immune status. The antigens used in this study consisted of PPD (5 IU), tetanus toxoid (TT) (0.8 LF/ml and 1.6 LF/ml, *Candida albicans* (20 PNU/ml and 200 PNU/ml), mumps-measles-rubella (MMR) vaccine (1:10 v/v and 1:5 v/v). The test was done by intradermal injection of 0.1 ml of each antigen. The anergy screen was considered positive when the test resulted in an erythema or induration larger than 5 mm at 72 hours after the injection. Complete anergy was diagnosed when there was no skin reaction at all, partial anergy when only 1 antigen tested positive and no anergy when there were positive skin reactions to two or more antigens. In the study group, 9 (45%) patients were diagnosed with complete anergy, 11 (55%) with partial anergy and none with no anergy, while in the control group, none were complete anergic, 3 (15%) were partially anergic and 17 (85%) had no anergy. There was a statistically significant difference ($p < 0.01$) between these two groups. In conclusion, patients with head and neck cancer seemed to have an impaired CMIR, with at least the partial anergy being statistical significantly different compared to the non-cancer group.