

CO₂ Laser Eradication of Recalcitrant Condyloma Acuminatum Does Not Influence T-lymphocyte Subsets

Sir,

It is well known that both the acquisition and a chronic course of human papillomavirus (HPV) infection depend on the immune status of the host. Immunosuppressed organ-transplanted and HIV-infected patients are at increased risk of therapy-resistant genital warts (1). Previous studies have indicated a defect in cell-mediated immunity among otherwise healthy patients with genital warts of long duration (2–4). There is limited data on the possible effect of chronic HPV infection on the immune system. The results of one small study indicated that elimination of genital warts resulted in increased number of T-helper (Th) cells in peripheral blood (2).

PATIENTS AND METHODS

This study was undertaken to evaluate whether or not the presence of chronic persistent genital warts had any impact on T-lymphocyte subsets in otherwise healthy adults. The study was done in 31 patients by performing T-lymphocyte subset analysis, including Th (CD4) and T-suppressor (Ts) counts, and estimating the Th/Ts ratio before and after removal of genital wart lesions by CO₂ laser vaporization. Peripheral blood was drawn for T-lymphocyte analysis the day prior to operation and in patients who had not presented with recurrences for 3 months. A single CO₂ laser treatment was sufficient for cure in 21 patients, whereas 10 patients received a total of 2–4 treatments. We used non-parametric statistical methods and chose a level of statistical significance < 5% (two-sided).

RESULTS

The blood Th concentrations (cells/ μ l) in the 14 female patients with vulval and/or perianal warts (median 1099, range 615–1623) were significantly higher when compared to the 10 males with penile warts (median 864, range 570–1142) ($p < 0.05$) and the 9 males with peri-intraanal warts (median 714, range 355–1044) ($p < 0.01$). The blood concentrations of Th and Ts, as well as Th/Ts values, did not deviate significantly before and after therapy, neither in the total study group nor within the groups of female and male patients. The Th blood concentrations of the 21 patients (11 females and 10 males) who received only one CO₂ laser treatment (median 909, range 480–1623) did not differ significantly from the 10 patients (7 males and 3 females) who received two or more treatments (median 915, range 467–1398) in order to obtain permanent cure ($p > 0.05$).

DISCUSSION

The results of our study could not confirm a previous report showing an increased number of Th cells in association with elimination of genital warts (2). Th lymphocytes predominate in genital condylomatous lesions (5). In addition, in one study of peripheral blood of patients with condylomas, researchers found an increase in the population of T-cells with a suppressive phenotype (6). However, in our study, the removal of condylomas did not induce a significant decrease in the number of Ts cells, suggesting that the presence of chronic genital HPV infection is not the principal cause of aberrations previously seen in T-lymphocyte subsets. T-lymphocyte subsets were not estimated in a control group of patients without genital warts. However, in comparison with historical healthy controls, the Th cell population does not seem to be suppressed in patients with genital warts of long duration.

REFERENCES

1. Melbye M, Palefsky J, Gonzales J, Ryder L, Nielsen H, Bergmann O, et al. Immune status as a determinant of human papillomavirus detection and its association with epithelial abnormalities. *Int J Cancer* 1990; 46: 203–206.
2. Chretien JH, Esswein JG, Garagusi VF. Decreased T-cell levels in patients with warts. *Arch Dermatol* 1978; 114: 213–215.
3. Mohanty KC, Roy RB. Thymus derived lymphocytes (T-cells) in patients with genital warts. *Br J Vener Dis* 1984; 60: 186–188.
4. Avgerniou G, Georgala S, Theodoridis A, Varelzdis A, Stratigos S. Reduction in cell mediated immunity in patients with genital warts of long duration. *Genitourin Med* 1986; 62: 396–398.
5. Bishop PE, McMillan A, Fletcher S. Immunological study of condyloma acuminatum in men infected with the immunodeficiency virus. *Int J STD AIDS* 1990; 1: 28–31.
6. Cauda R, Tying SK, Grossi CE, Tilden AB, Hatch KD, Sams WM, et al. Patients with condyloma acuminatum exhibit decreased interleukin-2 and interferon gamma production and decreased natural killer activity. *J Clin Immunol* 1987; 7: 304–311.

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