

Local immune response after intravesical interferon gamma in superficial bladder cancer.

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Source

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Abstract

OBJECTIVE:

To investigate the lymphocyte subpopulations (T4, T8 and macrophages) and major histocompatibility (MHC) II antigens in patients with superficial bladder cancer before and after intravesical instillations of recombinant interferon-gamma (IFN-gamma).

PATIENTS AND METHODS:

Four intravesical weekly instillations of either 1.3 mg (20 patients, group A) or 0.7 mg (11 patients, group B) IFN-gamma were administered in 31 evaluable patients (28 men and three women, mean age 68.5 years). The CD4+, CD8+, CD68+ and HLA-DR antigens were detected immunohistochemically in tumours and a marker tumour before and after intravesical instillations.

RESULTS:

The median number of T4 lymphocytes increased from 15 per high-power field (HPF) to 27.5 in group A ($P = 0.0029$) and to 45 in group B ($P = 0.0117$). Macrophages increased from 6 cells/HPF to 15 cells/HPF in group A ($P = 0.0029$) and from 2 to 8.75 cells/HPF in group B ($P = 0.0117$). The T8 lymphocyte subpopulation decreased from 4 to 3 cells/HPF ($P = 0.0231$) in group A and from 5 to 2 cells/HPF ($P = 0.0759$) in group B. The median percentage of HLA-DR antigens increased from 1.5% to 18% in general, ($P < 0.001$), from 2.5% to 15% in group A ($P = 0.0064$) and from 0% to 20% in group B ($P = 0.0077$). The induction of HLA-DR antigens was statistically significant in those receiving the lower dose (from 0% before instillation to 20% afterward, $P = 0.0277$), while it was not with the higher dose (from 0% to 5%, $P = 0.068$). Irrespective of the dose of IFN used. T4 lymphocytes and macrophages increased significantly after treatment in patients in whom the tumour HLA-DR antigens were either up-regulated or remained stable. The median net increase in T4 cells was 17.5 and 30 cells/HPF for groups A and B, respectively ($P = 0.0429$).

CONCLUSION:

T4 lymphocytes, macrophages and HLA-DR antigens increased after intravesical IFN-gamma in patients with superficial bladder cancer, but T8 lymphocytes decreased. Irrespective of the drug dose used, patients with either upregulated or stable HLA-DR antigens after treatment showed the same pattern of changes in the lymphocyte subpopulations. The two doses generally had the same effect on the immunological variables assessed but the lower dose was more effective in inducing HLA-DR antigens and in increasing the number of T4 lymphocytes in the tumours.