Jpn J Apheresis 13(2): 148-149, 1994

Extracorporeal Immunotherapy for Terminal-Stage Cancer Patients by Using Cellulose Acetate Beads

K. Kukita, M. Yonekawa, H. Hirai, A. Ikeda, M. Takahashi, J. Meguro, A. Kawamura, T. Mizuta,* and M. Adachi*

*Department of Surgery, Sapporo Hokuyu Hospital, Artificial Organ & Transplantation Hospital, Sapporo 003, Japan, and * Japan Immunoresearch Laboratories, Takasaki 370, Japan*

The granulocyte and lymphocyte ratios in advanced cancer patients increase and as the ratio becomes higher, the prognosis becomes poorer.

We developed a granulocyte/lymphocyte regulation system[1] and tried extracorporeal immunotherapy in terminal-stage cancer patients.

Patients and Methods

Two patients with liver cell cancer, two with metastatic liver cancer, four with metastatic lung cancer and one patient with metastatic peritoneal lymphadenopathy received this therapy.

A column with a capacity of 297 ml containing 22,000 cellulose acetate beads was used. Extracorporeal circulation was performed for 30 min per therapy. The therapy was performed two or three times/week. One course was 15 times. Patients received from one to eight courses. Natural killer activity, phytohemagglutin response (PHA). CD4/8, M-CSF, IL-1α, IL-1β were measured before and after the first course.

Lymphocyte surface markers, CD3-, CD4-, CD8-, CD16-, CD19-, CD25- and CD57-positive cells were measured before and after the first procedure in one case.

Results

Pains, general malaise and appetite loss were improved in eight cases. Performance status was improved in four cases. Remarkable improvement of cough were observed in metastatic lung cancer patients. Despite the improvement of subjective symptoms, the tumor shadows did not become smaller on computed tomography and/or echography. The mean survival time was 263 days. Long survival cases were one of 503 days and another of 616 days. PHA tended to fall in many cases but natural killer activity and CD4/8 did not have a fixed tendency within immunological parameters. M-CSF elevation was observed in four cases. CD3, CD4, CD8, and CD19 elevated, CD25 was stable, CD16 and CD57 declined after one therapy (Fig. 1).

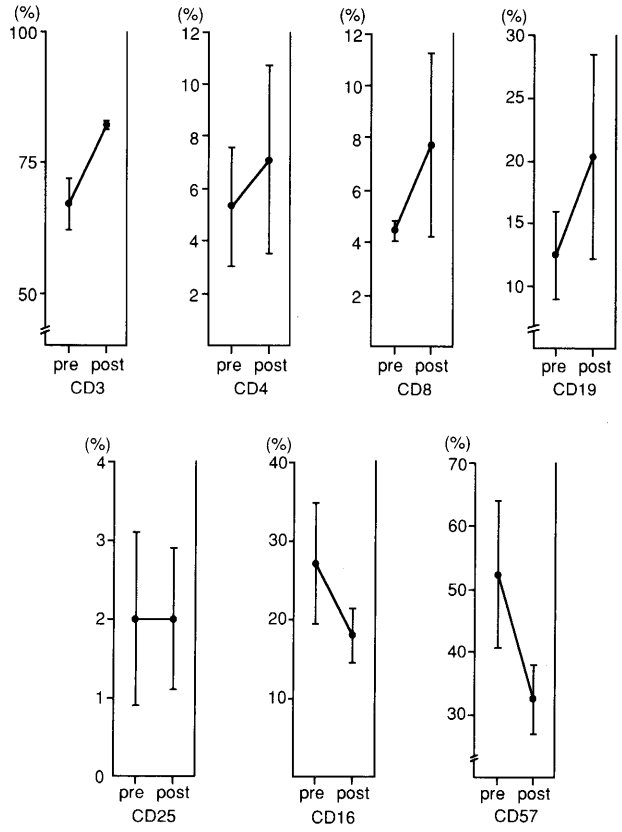

Fig. 1 Changes in lymphocyte surface markers.

Conclusion

Immunological changes could be affected by this granulocyte/lymphocyte regulation system, but fixed tendencies were not observed within immunological parameters. Responses to this treatment changed on a case-by-case basis. Despite the improvement in subjective symptoms, tumor reduction was not observed. In addition to these immunological changes it has been suggested that this treatment may also have a positive effect on blood viscosity.[2]

References

1) Komai T, Nakamura T, Miyamoto K, et al: Development of the extracorporeal granulocyte depletion system and its evaluation with the treatment of tumor bearing hosts. Polymer Preprints **41**: 3271-3273, 1992
2) Kukita K, Meguro J, Yonekawa M, et al: The improvement on microcirculation by cryofiltration. Jpn J Artif Organs **20**: 270-272, 1991