High Dose Intact-Immunoglobulin Treatment for an HIV-Infected Asymptomatic Carrier with Hemophilia

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AKUTSU, Y., MORI, K., SUZUKI, S., ISHIKAWA, M. and SAKAI, H. *High Dose Intact-Immunoglobulin Treatment for an HIV-Infected Asymptomatic Carrier with Hemophilia.* Tohoku J. Exp. Med., 1990, **160** (1), 95-96 — Intravenous administration of a high dose of intact-immunoglobulin to a human immunodeficiency virus (HIV) infected patient with hemophilia A, whose total lymphocyte and CD4 positive lymphocyte counts showed a decreasing tendency, resulted in a gradual rise in these cell counts. The results were quite reproducible on another occasions. Therefore, intravenous administration of gammaglobulin (IVGG) was thought to be effective for preventing further deterioration of cellular immunity and progression from asymptomatic carrier (AC) to AIDS related complex (ARC)/AIDS in hemophilia patients. ——— HIV; AC; intact immunoglobulin preparation; CD4 positive lymphocyte

HIV infection is characterized by progressive depletion of total lymphocytes, especially CD4 positive helper/inducer lymphocytes. Therefore, patients with ARC and AIDS show a grievous diminution of cellular immunity and suffer from a variety of opportunistic infections, despite the presence of hypergammaglobulinemia. Several authors have reported the clinical implication and benefit of high dose intact intravenous gammaglobulin (IVGG) treatment for patient with ARC and AIDS (Calvelli and Rubinstein 1986; Ohno et al. 1988; Yap and Williams 1988). We carried out the present study to see whether the high dose IVGG treatment prevents the progress of immunosuppression in course of an HIV antibody positive asymptomatic carrier (AC) with hemophilia.

At the beginning of the present study, a 33-years-old AC patient with hemophilia A, having no characteristic symptoms, developed moderate lymphocytopenia ($1,000-1,200/\mu\text{l}$; normal range = $1,300-3,200/\mu\text{l}$), and absolute lymphocyte counts including CD4 positive cells decreased persistently to 50% levels for last 5 years. Lymphocyte marker studies showed reversed CD4/CD8 ratio of 0.30-0.60 (normal range = 1.0-2.4) constantly in last 3 years, and CD4 positive cells have been persistently reduced to less than $300/\mu\text{l}$ (normal range over $400/\mu\text{l}$). Intact gammaglobulin preparation (Gammagard®; Baxter Ltd., Tokyo; ion-exchange-resin treated) was given 200 mg/kg/every other week, twice a 8-week course.

At the end of the initial 5-week treatment course, total lymphocyte and CD 4 positive cell counts increased progressively from $1,200/\mu\text{l}$ to $1,600/\mu\text{l}$ and from $313/\mu\text{l}$ to $414/\mu\text{l}$, respectively. In the following course, both cell counts decreased gradually to the initial levels. After 8 week observation, the patient received the second treatment with IVGG in

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TABLE 1. *Changes in lymphocyte subsets and platelet counts after administration of IVGG ($\downarrow$)*

	Initial course					Additional course				
	Before $\downarrow$	2W $\downarrow$	4W	5W	6W	8W $\downarrow$	10W $\downarrow$	12W	14W	16W
Lymphocyte ($/\mu\text{l}$)	1200	1400	1300	1600	1500	1300	1400	1700	1500	1600
CD4 ($/\mu\text{l}$)	313	265	393	414	348	243	363	383	444	389
CD8 ($/\mu\text{l}$)	434	480	640	781	648	429	559	757	651	683
CD4/CD8 ratio	0.72	0.55	0.61	0.53	0.54	0.57	0.61	0.51	0.68	0.57
Platelet C. ($\times 10^4/\mu\text{l}$)	13.6	12.8	14.2	14.2	13.7	13.1	12.7	13.0	16.2	15.1

W, weeks.

the same way as the initial treatment. Total lymphocyte and CD 4 positive lymphocyte counts markedly increased again from 1,300/ μl to 1,700/ μl and from 243/ μl to 444/ μl , respectively, during the second treatment. CD 8 positive lymphocytes also increased transiently. However, no improvements of CD 4/8 ratio and platelet count were noted in the present study (Table 1).

The gradual decrease of total lymphocyte counts in HIV infected AC patients were thought to be suggesting their poor prognosis (Bowen et al. 1985). The aim of the present study was to see whether the high dose IVGG prevents the progressive deterioration of immune system. A good response was obtained in this patient with elevated lymphocyte count including CD 4 positive lymphocytes by this treatment, and also the definite reproducibility of this treatment was observed. IVGG therapy is considered to be one of the effective treatment of HIV-associated lymphocytopenia. However, the role of the IVGG in these efficacy is still unknown.

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