Short communication

Lymphoma in Castleman’s disease, acute lymphocytic leukemia, adult T-cell leukemia and cutaneous T-cell lymphoma accompanied with high serum soluble Fas ligand levels

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The Fas ligand (FasL) is a member of the tumor necrosis factor family [1]. Cleavage of membrane-bound FasL by a metalloproteinase-like enzyme results in the formation of soluble FasL (sFasL) [2]. sFasL binds to Fas antigen and induces apoptosis which plays a major role during development and in homeostasis against Fas-expressing cells, and is considered to work as a pathological agent in systemic tissue injury [3]. FasL is a 40 kDa glycoprotein that is expressed on the cell membrane of activated cytotoxic cells, including CD4+ and CD8+ T cells and natural killer (NK) cells [4, 5]. A recent report indicated that sFasL is present in the supernatant of activated human peripheral blood T cells [6].

Tanaka et al. reported that serum FasL concentrations were highly elevated in patients with large granular lymphocytic leukemia and NK lymphoma, but were undetectable in patients with adult T-cell leukemia, acute myelogenous leukemia, acute promyelocytic leukemia, acute lymphocytic leukemia, or T- and B-cell lymphoma [2]. Furthermore, it was reported that the serum sFasL level was high on admission, but rapidly decreased to the reference range following chemotherapy in

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a patient with aggressive nasal lymphoma [7], and serum sFas levels were elevated in patients with hemophagocytic syndrome and Diamond–Blackfan anemia [4].

In this study, we have re-evaluated the presence of serum sFasL concentrations in patients with:

- multiple myeloma (MM)
- myelodysplastic syndrome (FAB; RA)
- acute myeloblastic leukemia (FAB; M0, M1 and M2)
- acute myelomonocytic leukemia (FAB; M4)
- acute erythroleukemia (FAB; M6)
- acute lymphocytic leukemia (ALL, FAB; L2)
- aplastic anemia (AA)
- idiopathic thrombocytopenic purpura (ITP)
- lymphoma in Castleman’s disease (Castleman)
- Hodgkin’s disease (HD)
- non-Hodgkin’s lymphoma (NHL)
- adult T-cell leukemia (ATL)
- cutaneous T-cell lymphoma (CTCL)
- polycythemia vera (PV)
- essential thrombocythemia (ET)
- immune hemolytic anemia (IHA)
- myelofibrosis (MF).

On entry all patients had evidence of active disease and had not received previous therapy. The human serum level of sFasL was measured using an enzyme-linked immunoabsorbent assay kit for sFasL (MBL, Nagoya, Japan). The limit of detection was 0.1 ng/ml. None of the serum concentration of healthy controls contained detectable level of sFasL. Serum sFasL levels of patients with various hematological disorders are summarized in Table 1. In four patients with Castleman (59 year old female, 0.15 ng/ml), ALL (66 year old female, 0.26 ng/ml), CTCL (83 year old male, 0.70 ng/ml) and ATL (67 year old female, 0.36 ng/ml), the serum sFasL was detected at levels elevated slightly or moderately. On the other hand, the serum sFasL levels were undetectable in the patients with other hematological disorders. Our patients with ALL, CTCL and ATL did not show high concentration in serum sFasL levels in contrast to patients with NK lymphomas and leukemias described by Tanaka et al. [2]. However, the serum sFasL level was undetectable in their patients with ALL and ATL. We have suggested that this difference may be attributable to the extent of systemic tissue damage, such as hepatosplenomegaly, liver injury, and bone marrow infiltration, and characteristics of FasL expressed in lymphoma and leukemia cells. Furthermore, it is of great interest that a slight elevation of serum sFasL level was observed in Castleman’s disease. Several