Short communication

Serum sialyl Lewis\textsuperscript{x} levels in patients with various haematologic malignancies


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Cell surface carbohydrates have been shown to be very important cancer-associated antigens. Sialyl Lewis\textsuperscript{x} (CSLEX) antigens are synthesized by a series of glycosyltransferases and have the polysaccharide determinant carried by so-called type 2 chain carbohydrates, the characteristic feature of which is a backbone structure composed of the Gal\(\beta 1 \rightarrow 4\)GlcNAc\(\beta 1\) repeating unit. CSLEX has been known as a tumor-associated antigen used for the diagnosis of cancers originating in the lung, ovary, breast and digestive organs [1, 7]. CSLEX is assumed to be the binding epitope of Epithelial (E)- and Platelet (P)-selectin in normal human neutrophils and myelocytic leukemia HL60 cells [2]. The presence of these CSLEX epitopes in the serum of cancer patients has been used as a tumor marker for over a decade [4, 5]. The levels of expression of CSLEX are increased in various cancers compared to those in corresponding normal tissues [3], and their moieties on circulating tumor cells tend to decrease after treatment, including surgery, and to rise again in cases of relapse [4]. It has been found that the variant type of CSLEX antigen was expressed on adult T-cell leukemia cells [1]. However, serum CSLEX levels in patients with hematologic malignancies have only rarely been reported. We therefore investigated whether serum CSLEX levels are increased in patients with various hematologic malignancies compared to those in normal controls and whether differences exist in levels of it among hematologic malignancy groups. We assayed CSLEX levels in the serum using an enzyme immunoassay and two-step sandwich

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Figure 1. Mean serum CSLEX levels in patients with various haematologic malignancies and healthy adult volunteers (N). The asterisk (*) indicates a statistically significant difference between N group and a haematologic malignancy group or between respective haematologic malignancy groups ($p < 0.05$).

assay kit for CSLEX (Nittobo, Fukushima, Japan) [6, 7] in 134 patients with various haematologic malignancies, including 18 with acute nonlymphocytic leukemia (ANLL), 6 with acute lymphocytic leukemia (ALL), 34 with non-Hodgkin’s lymphoma (NHL), 31 with myelodysplastic syndrome (MDS), 17 with chronic myeloproliferative disorders (CMD), 10 with multiple myeloma (MM), 11 with adult T-cell leukemia/lymphoma (ATL/L), 3 with Hodgkin’s lymphoma (HL), 4 with haemophagocytic syndrome (HPS), and 58 healthy adult volunteers (N). On entry, all patients had evidence of active disease and had not received previous chemotherapy. Results are expressed as means ± SD. Differences in mean serum levels of CSLEX among the respective haematologic malignancy groups and the N group were compared using Fisher’s Protected Least Significant Difference Test: $p$ values less than 0.05 were considered significant. The normal reference value of serum CSLEX level was $2.7 ± 2.4$ U/ml. The mean CSLEX value was $5.4 ± 4.7$ U/ml in ANLL patients, $3.7 ± 3.2$ U/ml in ALL patients, $3.5 ± 5.1$ U/ml in NHL patients, $3.3 ± 3.9$ U/ml in MDS patients, $3.3 ± 2.9$ U/ml in CMD patients, $2.3 ± 1.4$ U/ml in MM patients, $3.2 ± 2.5$ U/ml in ATL/L patients, $4.6 ± 2.7$ U/ml in HL patients and $3.5 ± 2.2$ U/ml in HPS patients as shown in Fig. 1. The mean serum CSLEX level was significantly increased in the ANLL group compared with the N, MDS