Is sIL-2R helpful for diagnosis of ML in neck LNs swelling?

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ABSTRACT

Cervical lymph node swelling is often the first manifestation of systemic malignancy, such as malignant lymphoma (ML). Soluble interleukin 2 receptor (sIL-2R) is secreted from activated lymphocytes and is known to be a biomarker of malignant lymphoma. The purpose of this study is to evaluate the usefulness of serum sIL-2R value for diagnosis of ML in patients with cervical lymphadenopathy. One hundred and fifty five patients (113 NHL and 42 other diseases) who received open biopsy of a cervical lymph node on suspicion of ML were examined to evaluate the usefulness of serum sIL-2R value for diagnosis of ML in patients with cervical lymphadenopathy.

METHODS AND MATERIALS

One hundred and fifty five patients were enrolled in this study. They underwent open biopsy for cervical lymphadenopathy to prove pathological diagnosis and were estimated serum sIL-2R. The patients consisted of 88 males and 67 females, age ranged from 6 to 90 years. The 113 other diseases were NHL, 60 Hodgkin lymphomas, 30 T cell lymphomas, 15 Hodgkin lymphomas, 11 other lymphomas, 9 neuroendocrine carcinomas, 8 squamous cell carcinomas, 7 adenocarcinomas (including 2 breast), 7 Clear cell carcinomas, 7 chronic lymphocytic leukemia/small lymphocytic lymphomas, 7 Castleman's diseases, 4 metastatic diseases (3 breast, 1 Tbc), 3 Hodgkin lymphomas, 1 metastatic melanoma, 1 cervical Lymphadenitis (SNL), 1 Mycosis fungoides, and 1 Langerhans cell histiocytosis. The 42 other diseases were the remaining 74 cases out of 113 MLs remained within the reference range. The values of serum sIL-2R were significantly higher in ML than the other diseases. Therefore, the serum levels of sIL-2R are helpful for diagnosis of ML in cervical lymphadenopathy if the cut-off value was properly applied.

RESULTS

The value of serum sIL-2R was significantly higher at the patients with MLs than with the other diseases (2230 versus 756 in median value) (Chart 1). Among the three types of MLs, T cell lymphomas showed higher sIL-2R value than the other two types but there was no significant difference between B cell lymphoma and Hodgkin lymphoma (Chart 2). The large population (84%) of the other disease groups than ML showed the value over the institutional reference range (220-530U/ml). Especially, three cases with benign lesions; tuberculosis (Tbc), subacute necrotizing lymphadenitis (SNL) and Castlemain disease demonstrated over 3000U/ml serum levels of sIL-2R (Chart 3).

Despite the elevated sIL-2R serum level of the other disease groups with cervical lymphadenopathy, ROC analysis revealed that the value of sIL-2R could predict the diagnosis of ML (AUC=0.803). Using a cut off value of 1350U/ml, the diagnosis of ML could be predicted with a specificity of 70.5% and specificity of 89.1% (Chart 4). Sensitivity also demonstrated higher but not significant (P=0.013) value in ML patients than the others (253 versus 197 in median value). The serum levels of LDH and sIL-2R were proved to be correlated (R=0.581, P<0.001) by Spearman's rank correlation.

DISCUSSION

Soluble interleukin 2 receptor is a biomarker of activated T-cells, which are introduced in hematologic malignancies, collagen diseases and infectious diseases. In the area of hematology, the value of sIL-2R has strong clinical significance because it is correlated with disease activity, therapeutic outcome and survival. However, low serum value of sIL-2R may not be a negative indicator of ML because the values of 9 cases out of 113 MLs remained within the reference range. The reason could be expected by the low serum levels of sIL-2R in patients with cervical lymphadenopathy, such as Tbc, reactive lymphadenitis and Castlemain disease also lead to T cell activation and secretion of sIL-2R. In this study, the serum levels of sIL-2R are proved to be much higher in ML than the other diseases. Therefore, the value of serum sIL-2R was helpful for diagnosis of ML in cervical lymphadenopathy if the cut-off value was properly applied, higher than the reference range which may be referred from normal volunteers. LDH is known to be a biomarker of ML and elevated serum level of LDH is one of five risk factors in International Prognosis Index. In this study, serum sIL-2R level seemed to be more useful than LDH level for predicting ML before treatment.

CONCLUSIONS

The value of serum sIL-2R was helpful for diagnosis of ML in patients with cervical lymphadenopathy if the cut-off value was properly applied. In this study, applying the cut-off value of 1350U/ml, diagnosis of ML could be predicted with a sensitivity of 70.5% and a specificity of 89.1%.

REFERENCES