Clinical significance of serum soluble interleukin-2 receptor in patients with primary central nervous system lymphoma

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Introduction

Soluble interleukin-2 receptor (sIL-2R) is well known as a disease marker of systemic malignant lymphomas. However, clinical significance of sIL-2R in primary central nervous system lymphoma (PCNSL) is still unclear. We investigated relationships between serum sIL-2R or other clinical values and the prognosis in patients with PCNSL.

Methods

The patients were 21 men and 22 women, mean age 66.5y, treated in our hospital from November 2002 to March 2014. Mean follow-up period was 17.4 months ranging from one to 122 months.

For the statistical analysis, the patients were grouped by the age (cut off: 70y), Karnofsky performance status (KPS. cut off; 70), the serum level of sIL-2R (cut off: 550IU/mL), LDH (cut off: 220U/mL) and standardized uptake value (SUVmax. cut off: 12) measured by 2-fluoro-2-deoxy-D-glucose positron emission tomography (FDG-PET) as tumor aggressiveness before the treatment.

Results

The serum level of sIL-2R was not affected by the age, but elevated in lower KPS group (p=0.0457). Poor KPS was observed in elderly patients. (p=0.0352)

Kaplan-Meier analysis exhibited higher uptake on FDG-PET associated with poor survival (p=0.0186), and mild tendencies of poor survival among the aged-population (p=0.1854) and lower KPS group (p=0.2822). Serum level of sIL-2R and LDH related neither FDG uptake nor survival.

Our results indicated sIL-2R had no prognostic impact but some relationship to the patient condition. (Figure 1,2,3)

Discussion

Known prognostic factors of PCNSL were the age, poorer performance status, higher serum LDH level, CSF protein concentration, and the involvement of deep regions of the brain. The sIL-2R level has a prognostic value of treatment outcome and survival in extracranial diffuse large B cell lymphoma, though, to our best knowledge there were no reports in regard to the relationship between PCNSL and serum level of sIL -2R.

On our observation, serum levels of sIL-2R in patients of PCNSL were much lower than of systemic lymphoma, in accordance with previous report that the IL-2R was less frequently expressed in central nervous lymphoma cells.

SUVmax measured by FDG-PET was not related to sIL-2R level, while it is known that SUVmax would reflect the tumor aggresiveness in lymphomas.

We presume the serum level of sIL-2R in patients of PCNSL might indicate poorer systemic and/or neurological condition of patients, rather than the aggressive behavior of lymphoma cells in the central nervous system.

Conclusions

Our study illustrates the serum level of sIL-2R reflects poorer systemic and/or neurological condition that might lead to worse prognosis. SUVmax in FDG-PET related to the patient survival.

References

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Learning Objectives

By the conclusion of this session, participants should be able to:

1) Explain knowledge about sIL-2R and clinical applications of its measurement.
2) Judge how systemic and/or neurological condition in patients with PCNSL impacts on their prognoses.
3) Compare and contrast the usefulness and implication of sIL-2R and FDG-PET for predicting the prognosis of PCNSL.

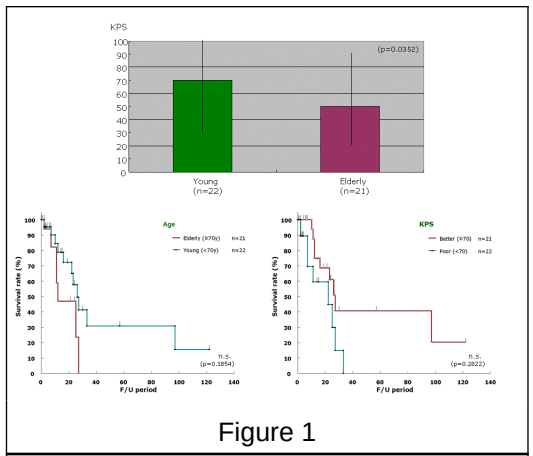

Figure 1

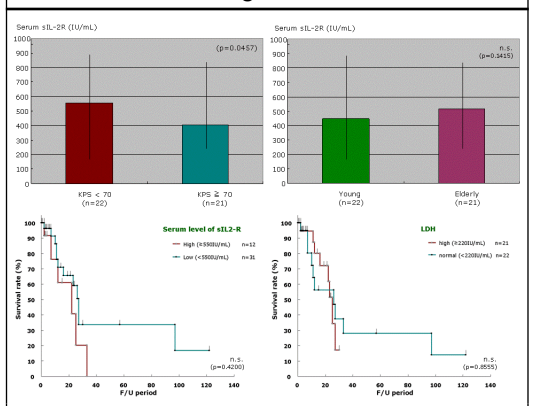

Figure 2

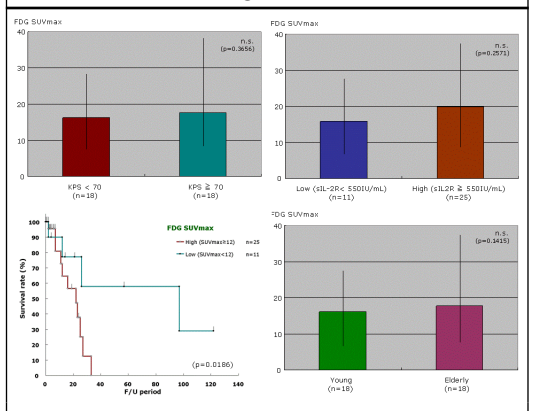

Figure 3