INTRODUCTION

- Vestibular neuritis accounts for 3% to 10% of patients who visit dizziness clinics and it is considered the second most common cause of acute peripheral vestibular disorders.
- The diagnosis can be achieved through a typical clinical presentation of abruptly developing vertigo without hearing loss, tinnitus, or other neurologic symptoms.
- The neutrophil to lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR), which can be easily calculated from the blood cell count, have been suggested as novel markers of systemic inflammation and thrombotic events.
- The aim of the study was to assess the significance of NLR and PLR in vestibular neuritis and to evaluate the correlation between severity of vestibular neuritis and blood profile results.

METHODS AND MATERIALS

- Patients and Study Design
  - A retrospective, case-control study
  - From January 2009 to December 2013
  - 70 patients with vestibular neuritis and 70 healthy subjects
- The diagnosis of vestibular neuritis
  1) presence of acute whirling-type vertigo with nausea, vomiting, and postural instability
  2) absence of hearing loss, tinnitus, ear fullness, and other neurologic signs related to central type dizziness
  3) horizontal spontaneous nystagmus with a rotational component toward the unaffected ear and catch-up saccades on the head impulse test
- Unilateral caloric test on the bithermal calorictest (Canal paresis >25%) was defined as unilateral vestibular weakness.
- Complete Blood Cell Test With Differential Count
  - Absolute numbers of lymphocytes, neutrophils, monocytes, and platelets
  - NLR and PLR were calculated
- Clinical Evaluation of Vestibular Neuritis
  - Symptomatic treatment was done for dizziness
  - The caloric test was performed after antivertiginous medication had ceased for 48 hours.
  - The patients were divided into two subgroups according to the duration of spontaneous nystagmus (4 days or less and 5 days or over), and laboratory results were compared between the subgroups.

RESULTS

- The mean NLR and PLR values of the patient group were 3.31 ± 2.02 and 129.49 ± 59.54, respectively, significantly higher than those of the control group (Fig. 1)
- The mean NLR and PLR of the patients with nystagmus for >5 days was higher than that of the patients with nystagmus for <4 days. (Fig. 2)
- Duration of subjective dizziness needing antivertiginous drugs was positively correlated with NLR and PLR (Table II)
- Both NLR and PLR scored highest when assessed at the time of symptom onset, and NLR was significantly negatively correlated with the interval between onset of vertigo and laboratory test (Fig.3)

DISCUSSION

- Our results can be summarized as follows
  1) NLR and PLR levels were higher in the patients with vestibular neuritis
  2) NLR may reflect the acute inflammatory status of vestibular neuritis
  3) Neither NLR nor PLR were correlated with the results of the caloric test
  4) Two clinical parameters of disease severity (dose length and duration of spontaneous nystagmus) were related to NLR and PLR.
- NLR and PLR are simple, cost-effective, readily available predictors of systemic inflammation and thrombosis.
- The high NLR and PLR in vestibular neuritis could be due to an increase of thromboembolic characteristics following systemic inflammation, which is consistent with the ischemic theory of vestibular neuritis.
- Whereas in sudden sensorineural hearing loss NLR reached its highest value 48 to 72 hours following the appearance of hearing loss, in the current study the mean value of NLR (in vestibular neuritis) was highest when the vertigo started.
- We theorize that the difference may be related to a difference in the thresholds of inflammation that cause hearing loss versus vertigo in the inner ear.
- Measurement of the changes of NLR and PLR during disease progression by serial blood sampling could help to further understand the effects of NLR and PLR in vestibular neuritis.

CONCLUSIONS

- NLR and PLR can reflect the severity of inflammation and thrombosis.
- When evaluating vestibular neuritis, NLR and PLR should be taken into consideration as simple and reliable parameters for assessing the origins and severity of the disease.

REFERENCES