Neutrophil-to-lymphocyte ratio and outcome of acute intracerebral hemorrhage

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Background: Immunity plays a meaningful role in determining the intracerebral hemorrhage (ICH) course, and immune biomarkers may have prognostic value.[1-3]

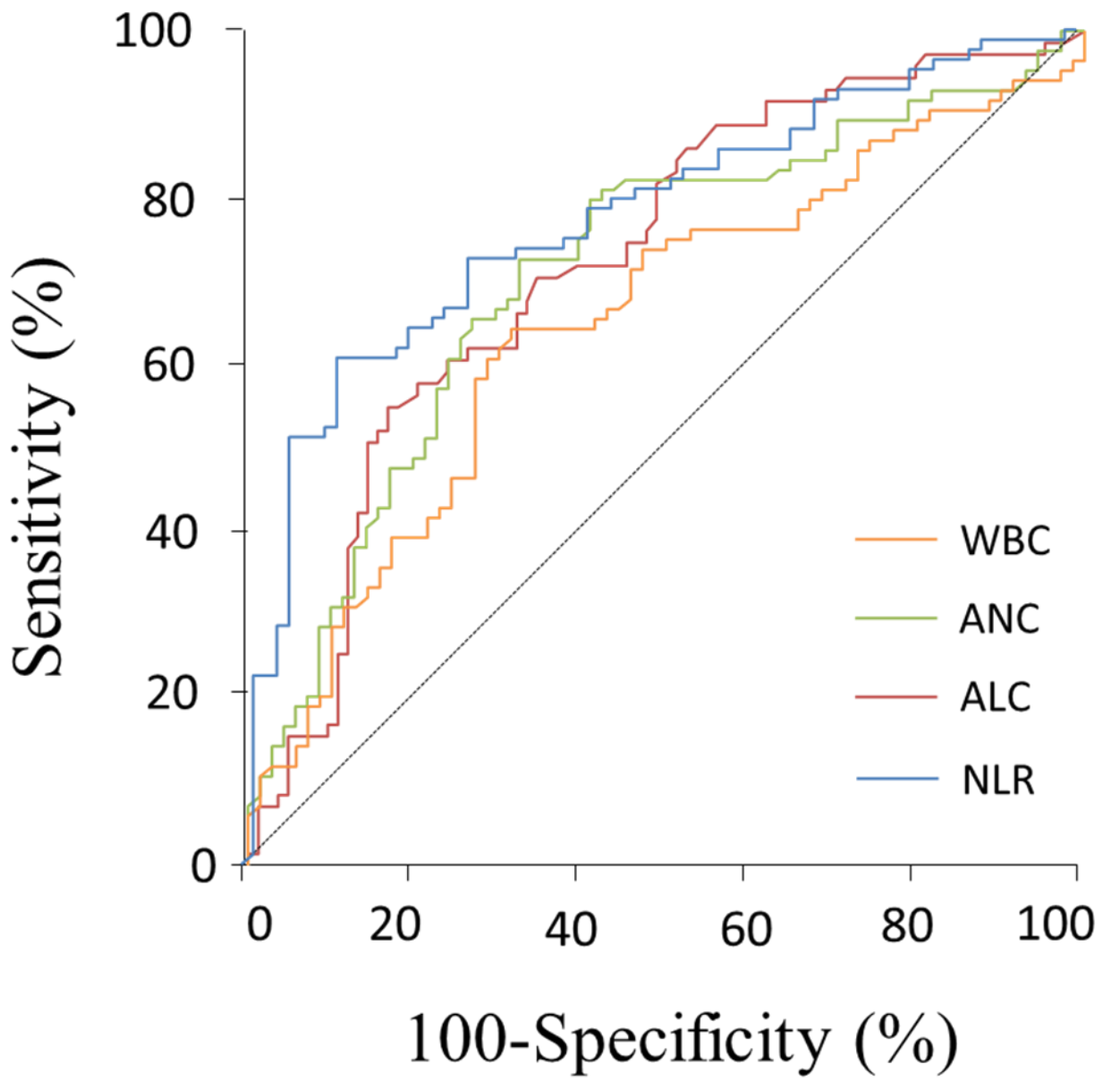
Aim: The aim of the study was to evaluate the prognostic role of the peripheral leukocyte counts and neutrophil-to-lymphocyte ratio (NLR) in patients with ICH.

Methods: We retrospectively identified consecutive patients with acute spontaneous ICH who had admission routinely blood sampling and cranial CT neuroimaging performed within 24 hours from symptom onset. Total white blood cells (WBC), absolute neutrophil count (ANC) and absolute lymphocyte count (ALC) were obtained from the admission blood work. The NLR was computed as the ratio of the ANC to ALC values. The study endpoint was death or major disability (modified Rankin Scale score ≥3) at 3 months.

Variable	Full cohort	Good outcome	Poor outcome	p value
WBC	8.74 (0.26)	7.92 (0.26)	9.46 (0.42)	0.003
ANC	6.41 (0.28)	5.18 (0.25)	7.46 (0.45)	<0.001
ALC	1.79 (0.14)	2.21 (0.27)	1.43 (0.08)	0.003
NLR	5.22 (0.41)	3.25 (0.42)	6.88 (0.60)	<0.001

Independent Variable	OR (95% CI)	*P* Value
White blood cells	1.12 (0.98–1.29)	0.094
Absolute neutrophil count	1.22 (1.03–1.44)	0.023
Absolute lymphocyte count	0.57 (0.33–0.99)	0.046
Neutrophil-to-lymphocyte ratio	1.16 (1.02–1.33)	0.031

Results: Poor outcome was reported by about half of the study cohort. At multivariate analysis, higher ANC, lower ALC and higher NLR values were independently associated with the 3-month status. The NLR resulted the best discriminating variable for the occurrence of the adverse outcome.



Conclusions

In patients with acute ICH, ANC, ALC, and NLR predicted the 3-month functional status.

The NLR could represent a reliable and readily available prognostic predictor

References

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