



Peripheral Inflammatory Biomarkers and Their Relationship with Histopathological and Molecular Features in Glioma: A Single-Centre Interim Analysis from Pakistan

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BACKGROUND

- Gliomas are the most common primary malignant brain tumors in adults.
- NLR, dNLR and PLR are inexpensive blood-based markers; higher values are linked to rapid tumor progression.
- Prognosis is determined by both histopathological grade and molecular alterations.
- Their relationship with tumor biology remains incompletely defined.

OBJECTIVE

To determine the association of NLR, dNLR and PLR with defined histopathological and molecular features in glioma patients.

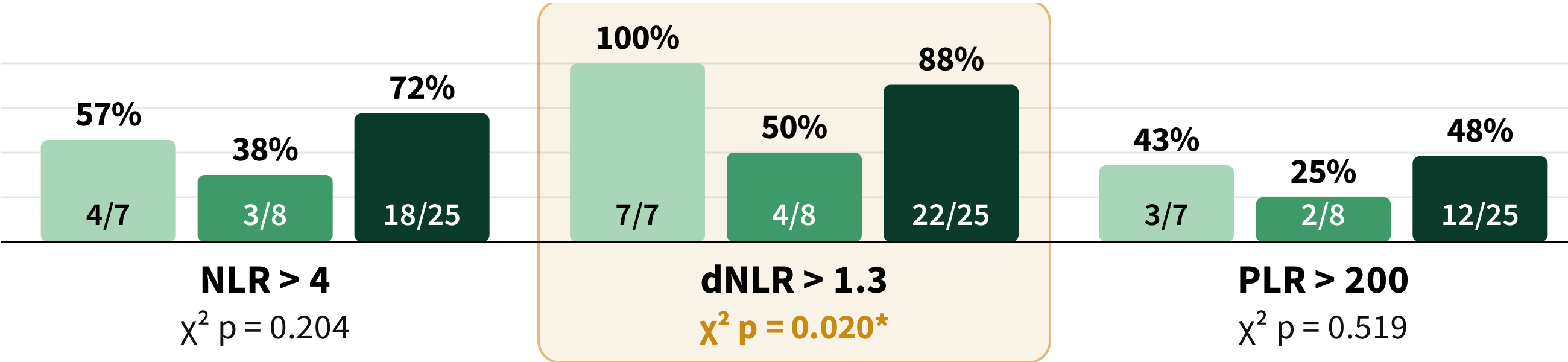
METHODS

Design	Single-centre, AKUH · Jul 2025 – Apr 2026
Cohort	40 histologically confirmed gliomas · pre-operative CBC
Cut-offs	NLR > 4 dNLR > 1.3 PLR > 200
Analysis	χ^2 , Fisher's exact test, Spearman correlation
Ethics	Exempted by the Ethical Review Committee, AKUH

RESULTS

Fig. 1 · By WHO grade (% elevated)

Grade 2 (n=7) Grade 3 (n=8) Grade 4 (n=25)



MOLECULAR FEATURES (% elevated)

	IDH status			ATRX status		
	Mutant (n=16)	Wild-type (n=24)	p	Lost (n=14)	Retained (n=26)	p
NLR > 4	50.0	70.8	0.205	71.4	57.7	0.502
dNLR > 1.3	81.3	83.3	1.000	85.7	80.8	1.000
PLR > 200	31.3	50.0	0.332	57.1	34.6	0.198

Fisher's exact test. WHO grade vs IDH: $r_s = 0.754$, $p < 0.001$.

CONCLUSIONS

- Elevated dNLR** was significantly associated with WHO grade.
- NLR and PLR trends warrant validation in the full cohort.
- These inexpensive markers may aid risk stratification while awaiting molecular profiling.