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Exploring the Role of Nutritional Biomarkers in Predicting Lupus Nephritis Incidence in Systemic Lupus Erythematosus: A Study of Non-Nephritis, WHO Class Nephritis, and Biopsy-Proven Nephritis

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Objectives : Systemic lupus erythematosus (SLE) often leads to lupus nephritis (LN), affecting 60% of patients. Recent research highlights malnutrition as a critical factor impacting clinical outcomes in autoimmune diseases, with the prognostic nutritional index (PNI) serving as an important marker of nutritional status and immune function. Assessing PNI may provide valuable insights into the early detection of LN in SLE.
Methods : A retrospective cohort study was conducted on SLE patients admitted to Moewardi Hospital, Indonesia, between January and December 2023. The patients were divided into three groups: non-LN, LN based on WHO criteria (LN-WHO), and LN based on biopsy (LN-Biopsy). The study analyzed lymphocyte and albumin levels to calculate PNI. ANOVA with post-hoc testing was conducted to assess PNI differences among the three groups, and logistic regression was applied to determine the relationship between PNI and lupus nephritis.
Results : Among the 120 enrolled patients diagnosed with SLE who met the study criteria, the mean age was 31.35 ± 11.1 years, with 93.7% female representation. The cohort consisted of 63.3% (76 cases) in the non-LN group, 25.8% (31 cases) in the LN-WHO group, and 10.8% (13 cases) in the LN-Biopsy group, with a mean PNI of 37.53 ± 10.42. Comparative analysis revealed significant differences in PNI between the non-LN group and both the LN-WHO ($p < 0.001$) and LN-Biopsy ($p < 0.001$) groups, while no significant difference was observed between the LN-WHO and LN-Biopsy groups ($p = 0.179$). These findings suggest that PNI is an effective indicator of LN incidence in SLE patients. Logistic regression analysis demonstrated a significant association between PNI and LN incidence ($p < 0.001$, Odds Ratio [OR]: 0.866), indicating that each 1-unit decrease in PNI is associated with a 13.4% increase in the risk of developing LN.
Conclusions : PNI is a valuable biomarker for predicting LN in SLE patients

Figure 1.jpg

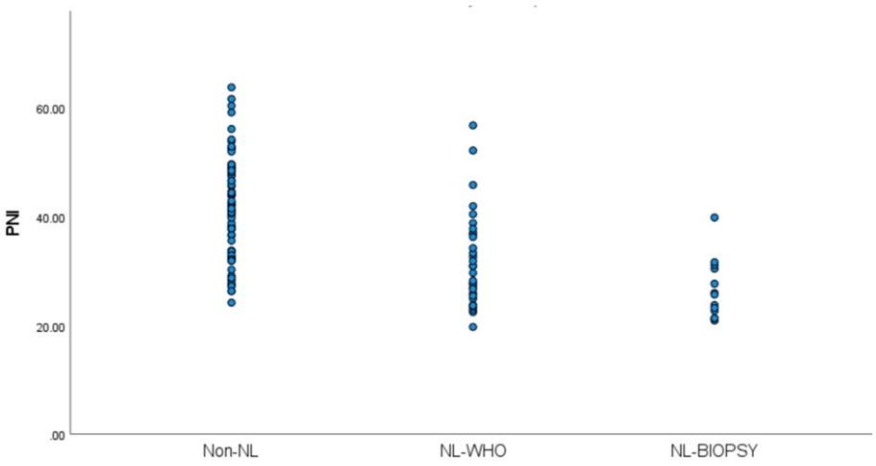
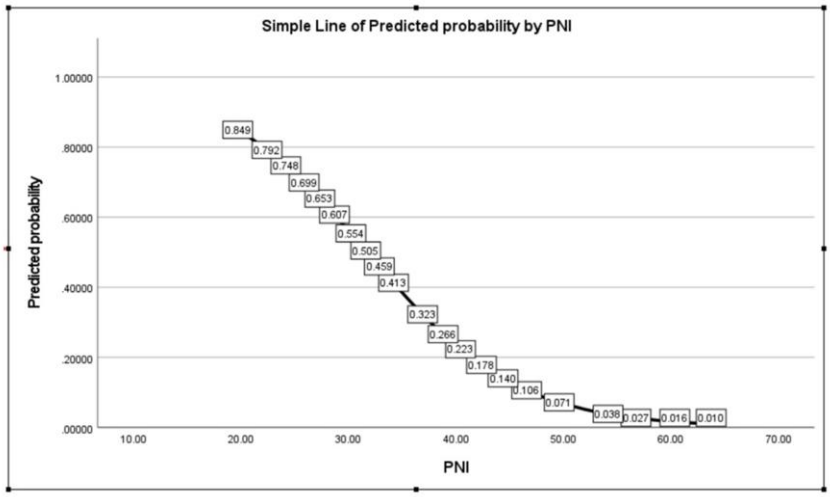

PNI
60.00
40.00
20.00
.00
Non-NL
NL-WHO
NL-BIOPSY

Figure 1.jpg


Simple Line of Predicted probability by PNI
Predicted probability
1.00000
.80000
.60000
.40000
.20000
.00000
0.849
0.792
0.748
0.699
0.653
0.607
0.554
0.505
0.459
0.413
0.323
0.266
0.223
0.178
0.140
0.106
0.071
0.038
0.027
0.016
0.010
10.00
20.00
30.00
40.00
50.00
60.00
70.00
PNI