

Neutrophil-to-lymphocyte ratio (NLR): an early and cost-effective predictor of upper urinary tract and genital infections in pregnant women



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BACKGROUND

- ✓ Genital infections (GI) and urinary tract infections (UTI) are common health issues during pregnancy. They are mostly risk-free but can be complicated and jeopardize the fetal prognosis.
- ✓ Microbiological diagnosis is usually time-consuming, hence the necessity of finding an early predictor of a gestational infection.
- ✓ The aim of this study is to make up a reliable, convenient and minimally invasive indicator to predict a GI or a UTI during pregnancy.


MATERIALS & METHODS

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  **180** healthy female > 18 years old (G I)
60 pregnant women with GI/UTI proven microbiologically (G II)



- NLR was calculated by dividing neutrophil count by lymphocyte count
- Quantitative variables were reported as medians with minimum and maximum values
- Intergroup comparison was performed using analysis of variance test.
- The sensitivity and specificity of the test were determined based on the ROC curve analysis

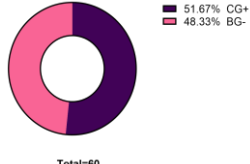
Results


G I : 22 years (18-59)
G II : 30 years (24-45)

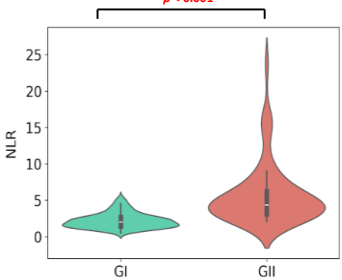
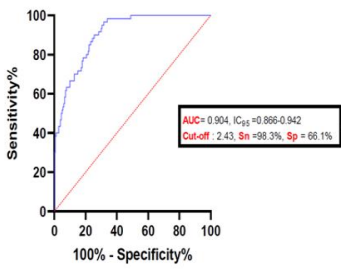
Our analysis showed a **significant statistical difference** between the NLR values of the 2 groups
 $p < 0.001$

A **2.43 NLR cut-off value** allows to predict a GI/UTI with a **sensitivity of 98.3%** and a **specificity of 66.1%**

Gram positive cocci were isolated in 51.67 % of the cases with *S. agalactiae* being the most frequent germ (35%)



Total=60

Binary regression model showed that **A one-unit increase in NLR increases the risk of infection in pregnant women by 243 %**.
 This model has a sensitivity of 93.3%, a specificity of 55% and a 83.3% predictive capability.

DISCUSSION

- ✓ Today NLR is widely used across almost all medical disciplines as a reliable and easy available marker of immune response to various infectious and non-infectious stimuli.
- ✓ A normal range of NLR is between 1-2, the values higher than 3.0 and below 0.7 in adults are pathological [1].
- ✓ NLR showed excellent predictive and prognostic values in many infectious diseases (sepsis, influenza, tuberculosis, urinary tract infections, influenza, post-operative infectious complications) [2].
- ✓ NLR can also be a useful marker in the follow up of oncology patients [3].

CONCLUSION

Emerging biomarkers like NLR are promising tools to predict gestational infections with excellent test performances.

REFERENCES

- [1] Zahorec and al Neutrophil-to-lymphocyte ratio, past, present and future perspectives, 2021
- [2] Tempelton and al, Prognostic role of neutrophil-to-lymphocyte ratio in solid tumors: a systematic review and meta-analysis, 2014