Comparison of complete blood count parameters in different severity of proteinuria among patients with type 2 diabetes mellitus

We recently have read with great interest an article entitled "Comparison of complete blood count (CBC) parameters in different severity of proteinuria among patients with type 2 diabetes mellitus," by Alirezaei, *et al*., which was published in your esteemed journal (2024;29:66).[1]

Investigate CBC parameters in this study as a predictor of diabetic nephropathy (DN) is very useful and beneficial due to its simplicity, cheapness, and quick response. However, there is a comment about this study.

Microalbuminuria is an early and primary predictor of DN. Although it is considered the gold standard for the early diagnosis of DN, it is not a sufficiently reliable predictor of DN risk due to some limitations. Thus, there is an obvious shift to new biomarkers which would help to predict DN risk early enough and possibly prevent the progress of end-stage kidney disease.[2]

Abnormal values of neutrophil-to-lymphocyte ratio (NLR) are higher than 5.[3] In this study, NLR values in mild, moderate, and severe proteinuria are <5, (1.93 ± 0.76, 2.34 ± 0.93, and 2.73 ± 1.07 in A1, A2, and A3 groups, respectively). Therefore, despite being significant, there is no proper correlation between NLR and proteinuria, this can be caused by the nature of DN and NLR changes. Then, NLR cannot be a good predictor for DN. On the other hand, there is no significant difference in the amount of NLR in the comparison of mild and moderate proteinuria, as well as in moderate and severe proteinuria. Moreover, this shows that NLR values are not reliable for the early detection of DN.[1]

Immunologic and inflammatory ethiologies play a remarkable role in the development and progress of DN with create and develop of innate immune cells and description of inflammatory cytokines. Therefore, macrophages and T-lymphocytes, which are dominant in diabetic glomeruli,[4] therefore, it seems that neutrophils and lymphocytes, especially B-lymphocytes, play a small role in the mechanism of DN.

An isolated increase in polymorphonuclear neutrophil and as a result, an elevated NLR, is observed in several conditions: bacterial or fungal infection, acute cerebrovascular accident, myocardial ischemia, atherosclerosis, severe injury, malignancy, postsurgery side effects, and any status determined by the tissue damage that causes to systemic inflammatory response syndrome (SIRS) and it is suggested to consider more exclusion criteria for this study.[5]

CONCLUSION

There is an increase in NLR with DN, but its increase cannot be a good predictor for the severity of DN, and it seems that microalbuminuria still plays an important role in predicting the onset of nephropathy.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

Mahboubeh Neamatshahi[1], Aghil Keykhosravi[2]
[1]Department of Community Medicine, Sabzevar University Medical of Science, Sabzevar, Iran, [2]Department of Pediatric Nephrology, Sabzevar University Medical of Science, Sabzevar, Iran

Address for correspondence:
Dr. Aghil Keykhosravi,
Department of Pediatric Nephrology, Faculty of Medicine, Sabzevar University of Medical Sciences, Sabzevar, Khorasan Razavi, Iran.
E-mail: drakeykhosravi@yahoo.com
Submitted: 13-Dec-2024; **Revised:** 08-Jan-2025; **Accepted:** 05-Mar-2025; **Published:** 30-Apr-2025

REFERENCES

1. Alirezaei A, Toudeshki KK, Taherian M, Pashapour H, Rahmani F, Norouzi N, *et al.* Comparison of complete blood count parameters in different severity of proteinuria among patients with type 2 diabetes mellitus. J Res Med Sci 2024;29:66.
2. Uwaezuoke SN. The role of novel biomarkers in predicting diabetic nephropathy: A review. Int J Nephrol Renovasc Dis 2017;10:221-31.
3. Zahorec R. Neutrophil-to-lymphocyte ratio, past, present and future perspectives. Bratisl Lek Listy 2021;122:474-88.
4. Donate-Correa J, Martín-Núñez E, Muros-de-Fuentes M,

Mora-Fernández C, Navarro-González JF. Inflammatory cytokines in diabetic nephropathy. J Diabetes Res 2015;2015:948417.
5. Buonacera A, Stancanelli B, Colaci M, Malatino L. Neutrophil to lymphocyte ratio: An emerging marker of the relationships between the immune system and diseases. Int J Mol Sci 2022;23:3636.

Access this article online

Quick Response Code:

Website: https://journals.lww.com/jrms

DOI: 10.4103/jrms.jrms_715_24

How to cite this article: Neamatshahi M, Keykhosravi A. Comparison of complete blood count parameters in different severity of proteinuria among patients with type 2 diabetes mellitus. J Res Med Sci 2025;30:24.