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Letter to the Editor

Correspondence regarding "Changes in eosinophil count during bacterial infection: revisiting an old marker to assess the efficacy of antimicrobial therapy"

We read with great interest the article by Davido et al. (2017) regarding the use of eosinophil counts as a marker of the response to antimicrobial therapy. Despite limitations, it provides support to the authors' hypothesis and warrants further prospective studies to confirm the value of monitoring eosinophil counts. We would like to comment on the points below.

The authors used mean values to compare eosinophil counts between the two groups. From our experience, eosinophil counts in patients with infection do not follow a normal distribution and are more likely right-skewed, although including only patients with an eosinophil count $<100/mm^3$ may reduce this problem. The authors should report whether their data followed a normal distribution. If not, considering the small sample size, it is possible that outliers had a significant effect on the mean values. The median and interquartile range are more appropriate descriptive measures for such distributions, and a non-parametric test should be used.

Considering that the goal of the authors was to assess the value of the eosinophil count in predicting the appropriateness of initial therapy, it would have been interesting if the authors had reported a similar analysis of their data excluding the four patients from group 2 who did not receive antibiotic treatment until day 1.

Furthermore, the initial treatment regimens differed between the two groups. The authors stated that this could not exclusively explain their results. However, we believe that this could have been an important confounding factor. For example, fluoroquinolones (which were used more commonly in group 1) may act faster than trimethoprim–sulfamethoxazole (TMP–SMX) in patients with pyelonephritis, even if both regimens are microbiologically appropriate, as evidenced by the shorter recommended duration of treatment (7 days for fluoroquinolones vs. 14 days for TMP–SMX) (Gupta et al., 2011; Talan et al., 2000).

Moreover, corticosteroids are a recognized cause of eosinopenia (Altman et al., 1981). The authors appropriately excluded patients receiving corticosteroids at a dose of >60 mg/day. However, lower doses may also contribute to lower eosinophil counts. Furthermore, the use of corticosteroids after presentation to the hospital (e.g., in the emergency department or the medical ward on day 0) was not taken into account.

Finally, the authors stated that "recovery from eosinopenia likely does not apply to viral infections", but did not provide any relevant literature or data. From our experience, profound eosinopenia is not uncommon in viral infections. Although a negative RT-PCR nasopharyngeal swab result may be supportive of bacterial infection, it cannot rule out a viral infection (e.g. Falsey et al. (2012)).

References

Altman LC, Hill JS, Hairfield WM, Mullarkey MF. Effects of corticosteroids on eosinophil chemotaxis and adherence. J Clin Invest 1981;67(1):28–36.
Davido B, Makhloufi S, Matt M, Calin R, Senard O, Perronne C, et al. Changes in eosinophil count during bacterial infection: revisiting an old marker to assess the efficacy of antimicrobial therapy. Int J Infect Dis 2017;61:62–6.
Falsey AR, Formica MA, Walsh EE. Yield of sputum for viral detection by reverse transcriptase PCR in adults hospitalized with respiratory illness. J Clin Microbiol 2012;50(1):21–4.
Gupta K, Hooton TM, Naber KG, Wullt B, Colgan R, Miller LG, et al. International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: a 2010 update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases. Clin Infect Dis 2011;52(5):e103–20.
Talan DA, Stamm WE, Hooton TM, Moran GJ, Burke T, Iravani A, et al. Comparison of ciprofloxacin (7 days) and trimethoprim-sulfamethoxazole (14 days) for acute uncomplicated pyelonephritis pyelonephritis in women: a randomized trial. JAMA 2000;283(12):1583–90.

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