



Scientific Comment

Does gender influence reference values of platelet indices? ☆



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Platelets, the smallest cellular component of blood, are anucleated, originate from the cytoplasmic fragmentation of the megakaryocyte in the bone marrow, and play a central role in hemostasis.¹ Based on data, automated hematological analyzers are essential in clinical laboratories, especially for the diagnosis and follow-up of patients with disorders of hemostasis.²

Significant technological development in automated blood cell counters has been observed in recent years, providing excellent analytical performance and robust information. However, specific knowledge becomes necessary in order to elucidate the appropriate clinical applications of these data.³ Some of these analyzers provide data on platelet indices, such as mean platelet volume (MPV), platelet distribution width (PDW), percentage of large platelets (P-LCR), and the percentage of blood volume occupied by platelets (plateletcrit – PCT),⁴ which are valuable in a number of clinical, hematological or non-hematological conditions.^{5–7}

Platelet indices have been investigated in cardiovascular diseases, cerebrovascular diseases, immune thrombocytopenia, diabetes mellitus, among others. Some studies indicate that these indices can be considered as markers of platelet activation in inflammatory and thrombotic conditions.^{5–9} In addition, the use of these indices as markers of the quality of platelet concentrates in transfusion therapy has been highlighted.¹⁰ Despite the accessibility and scientific interest in investigating the association of these data with various clinical conditions, platelet indices are not routinely used in

clinical-laboratory practice. Perhaps, the underutilization of these indices may be due to limited knowledge regarding their reference values.⁵

The purpose of laboratory tests may be diagnostic, prognostic, or for monitoring of treatment. To achieve this purpose, it is necessary that some aspects of each laboratory test be considered. An important aspect is the limit of significance that is the determination of its reference range or interval.¹¹

The reference interval of laboratory tests is of fundamental relevance for the interpretation of laboratory results and provision of useful clinical information in order to aid proper medical decision. Thus, reliability of the reference interval may play a crucial role in the clinical interpretation of results.¹²

Several laboratory parameters have specific reference values for men and women due to differences in anatomical structure, muscle mass or hormonal profile.¹³ Specifically for the determination of platelet indices, there are contradictory reports about these differences.^{5,13,14}

In this volume of the Brazilian Journal of Hematology and Hemotherapy, Ali et al. analyzed the reference ranges of MPV, PDW, P-LCR and PCT according to gender, of 2356 apparently healthy individuals from a population of the United Kingdom.¹⁴ In the study, individuals were found to have statistically significant differences in the reference range of MPV, P-LCR and PCT for men and women. However, no differences were identified in the reference range of PDW.

DOI of original article: <https://doi.org/10.1016/j.htct.2018.09.005>.

☆ See paper by Ali U et al. on pages 153–157.

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<https://doi.org/10.1016/j.htct.2019.04.001>

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An important aspect was the sample size analyzed in the mentioned study and, as highlighted by Ali et al., the results obtained confirmed reports in the literature.¹⁴ However, when compared to other studies, the findings were discordant, and support the relevance of establishing reference intervals for each region and specific population as recommended by the Clinical and Laboratory Standards Institute (CLSI).¹⁵ More importantly, this work reinforces the idea of having a local reference schedule with regards to gender, thus, permitting a more accurate assessment of the quality and information of the results of clinical laboratory tests.

Conflicts of interest

The author declares no conflicts of interest.

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