
CORRESPONDENCE

THE MEASUREMENT OF NEUTROPHIL MYELOPEROXIDASE BY FLOW CYTOCHEMISTRY IS INFLUENCED BY THE PSEUDOPEROXIDASE ACTIVITY OF HEMOGLOBIN

To the Editor:

Gulley et al¹ have recently reported increased neutrophil myeloperoxidase (MPO) activity in 10 anemic patients demonstrated by the Technicon H*1 instrument (Technicon Instruments Corp, Tarrytown, NY).

Dash et al² have commented on this report for not considering the balance of smokers to nonsmokers.

We would like to comment further on this report. It has been shown by us that the neutrophil MPO activity of the Hemalog D³ (Tarrytown, NY) and the Technicon H6000⁴ is strongly influenced by the hemoglobin content of the sample. It has been proposed that the effect is due to the pseudoperoxidase activity of the hemoglobin consuming the reactants and decreasing their availability to the white blood cells. Hence, in anemic patients a stronger reaction is seen and the MPO apparently increases. The Technicon H*1 uses similar methodology to the Hemalog-D and H6000.

Variation in the scale of the inhibition has been shown between

different H6000 machines, this phenomenon being dependent on the gain setting of the peroxidase absorption pulses.⁵

In a diagnostic situation it is essential to make corrections for this pseudoperoxidase effect (which gives a straight line relationship) before comparing neutrophils from samples with widely different hemoglobins. The measurement may further be complicated in iron deficiency as MPO is an iron-containing enzyme and it had been shown to have reduced activity.⁶

J. HEWITT

*Department of Haematology
Withington Hospital
Manchester, UK*

D.M. REARDON

*John Bonnett Clinical Laboratories
Addenbrookes Hospital
Cambridge, UK*

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