Comparison of cyanmethaemoglobin method of estimating haemoglobin concentration using four different analysers

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sysmex NE8000 (1 in 5 dilution)</th>
<th>Sysmex NE8000 (1 in 5 dilution)</th>
<th>Coulter S880</th>
<th>Cobas Argo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemoglobin (g/dl)</td>
<td>12.9</td>
<td>11</td>
<td>10.4</td>
<td>10.5</td>
</tr>
<tr>
<td>HCT</td>
<td>32.9</td>
<td>30.3</td>
<td>32.3</td>
<td>32.5</td>
</tr>
<tr>
<td>MCV (fl)</td>
<td>86</td>
<td>NA</td>
<td>100</td>
<td>99</td>
</tr>
<tr>
<td>MCH (pg)</td>
<td>39.8</td>
<td>35.5</td>
<td>32.2</td>
<td>32.2</td>
</tr>
<tr>
<td>MCHC (%)</td>
<td>39.2</td>
<td>36.1</td>
<td>32.2</td>
<td>32.4</td>
</tr>
<tr>
<td>WCC (x 10^3)</td>
<td>6.45</td>
<td>7</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Patient’s sample (x 10^3)</td>
<td>166</td>
<td>181</td>
<td>182</td>
<td>182</td>
</tr>
</tbody>
</table>

HCT = haematocrit; MCV = mean corpuscular volume; MCH = mean corpuscular haemoglobin; MCHC = mean corpuscular haemoglobin concentration; WCC = white cell count.

Inaccurate haemoglobin estimation in Waldenström’s macroglobulinaemia

We read with interest the article by Goodrick et al. A similar problem was observed in a patient with Waldenström’s macroglobulinaemia using the Sysmex NE 8000 automated blood analyser when the patient’s plasma haemoglobin concentration was overestimated. The blood sample repeatedly failed the optical limits for true corpuscular haemoglobin and mean corpuscular haemoglobin concentration. A 1 in 5 dilution of the sample in Sysmex diluent partially corrected the problem.

The Sysmex NE 8000 converts haemoglobin to a sulphate derivative using sodium lauryl sulphate. Other analysers using the cyanmethaemoglobin method of estimating haemoglobin concentration gave satisfactory results (table).

The Sysmex diluent PK-30L is described as an isotonic solution containing boric acid, sodium tetraborate, dipotassium EDTA, and sodium chloride. Whole blood (6 μl) is diluted with 2.0 ml diluent before mixing with 1 ml Sulsolysys 220A, a lysing solution containing 0.17% sodium lauryl sulphate. The haemoglobin sulphate is measured at 534 nm within two minutes of sampling. We have used theSysmex plasma (6 μl) and repeated the absorbance at 534 nm after mixing with diluent and Sulsolysys. There was an increase in optical density (OD) of 0.07 units on addition of the lysing agent. This could be abolished by pretreating the plasma with 2-mercaptoethanol. Substitution of normal saline as diluent or substitution of a 0.17% sodium lauryl sulphate solution in water as lysing agent also prevented the rise in OD. Plasma from a patient with IgG myeloma and plasma from a normal donor did not exhibit this phenomenon.

We conclude that pentameric IgM in the patient’s plasma is barely soluble in PK-30L diluent. Addition of Sulsolysys decreases the solubility of the paraprotein and the time taken to redissolve is longer than the analysis time of the instrument. We suggest that individual IgG paraproteins may present problems with haemoglobin measurement depending on the instrument and the measurement method used. The falsely elevated haemoglobin concentration in our patient was not sufficient to be obvious clinically.

MF MCMULLIN
HI WILKIN
 Mater Hospital Trust, Coulmoun Road, Belfast

E ELDER
 Royal Victoria Hospital, Grosvenor Road, Belfast

Six children with true villous atrophy at onset did not relapse and have been symptom-free on a normal diet; transient gluten intolerance must be considered as a likely diagnosis in these patients although strict criteria were not adhered to. Despite scepticism about this entity, no other factors could be identified and the gluten-free diet alone led to marked improvement in these patients. In summary, our data reinforce the conclusions of Shidrawi et al. and stress the relevance and need for accurate interpretation of histology in the diagnosis of coeliac disease.

J AMIL DIAS
 TR SOUSA
 M SANTOS
 FC RODRIGUES
 A AGUIAR
 Department of Paediatrics,
 S. João Hospital, Porto, Portugal

F CARNEIRO
 Department of Pathology

Correspondence

We were interested to read the recent paper by Shidrawi et al., which confirms our experience in a group of children with coeliac disease. Inaccurate haemoglobin estimation in Waldenström’s macroglobulinaemia is unique with respect to monomeric IgM paraprotein. J Clin Pathol 1993;46:1138-9.


Book reviews


Coming from a background in gynaecology and pathology, the author aims to improve communication between the specialties by presenting short sections on both subjects. She has missed her opportunity, however, by dividing the book into separate gynaecology and gynaecology sections rather than discussing them together in a clinicopathological context.

Both parts are too short and do not include much information that would be useful to anyone other than a beginning pathologist in the gynaecology specialty and contain too much that is irrelevant to someone from another discipline. For example, neither gynaecologists nor pathologists need a picture of a microtome, which in any case is rotated through 90°. There are many excellent illustrations but some are wrong, covered in other chapters or contradicted by others elsewhere in the book. If the pathology section is aimed at gynaecologists, and the gynaecology section at pathology, then it is too detailed but there is insufficient detail for it to be used as a bench book in histopathology. Many of the references are to standard texts, such as Biopsy Pathology of the Endometrium by Buckley and Fox (which is a better book), and references to original papers are out of date: nothing