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EDITORIAL : VAN DIE REDAKSIE

THE DIAGNOSIS OF ANAEMIA

We are sure that many of our readers will remember the days when the red cell count was regarded as one of the important investigations in the diagnosis of anaemia. The red cell count together with the haemoglobin level enabled us to calculate the 'colour index' and, taken with the haemotocrit level, the mean cell volume could be determined. If the colour index (or mean cell volume) was low, deficiency of iron could reasonably be postulated, while if these indices were elevated the anaemia would probably respond to injections of liver. These rough guides worked reasonably well in practice but they undoubtedly engendered a false sense of accuracy. If a substantial error occurred in any of these basic tests the 'absolute index' would probably be incorrect.

It has been shown that considerable errors occur in the red cell count.[1, 2] Biggs and MacMillan,[2] for example, calculated that the standard error of the red cell count lay between 8 and 10%. Errors arose from personal bias in counting and in the selection of counting areas, as well as from the random distribution of cells in the counting chamber. Many of these errors arise because it is seldom possible to count more than 1,000 cells in a single count. The recent introduction of electronic red cell counters has gone far in eliminating many of these errors. One model, for example,[3] can count about 10,000 cells in 2 minutes with a high degree of accuracy. If a reliable estimation of haemoglobin can be made on the same sample of blood there is virtue in the calculation of the colour index. The normal colour index thus estimated has been found to be 0·99[4]—a very surprising and apparently fortuitous approximation of the so-called normal figure of 1 which was calculated by less accurate methods many years ago.

The estimation of haemoglobin has presented many difficulties. Because of its great importance the Medical Research Council (London) appointed a Committee to investigate the matter. They found that reliable results could be obtained by the use of an oxyhaemoglobin method using a neutral grey wedge photometer.[5, 6] Reliable results can also be obtained by the use of cyanmethaemoglobin solutions read in a photo-electric colorimeter.[7] The introduction of a service by which blood of known haemoglobin concentration is made available to any laboratory requesting it, has done much to simplify standardization. Colour standards for cyanmethaemoglobin are also commercially available. However, all methods for the estimation of haemoglobin require great care, and a simple, inexpensive and completely reliable instrument suitable for use by the average practitioner in his office still eludes us. None of the instruments at present available can be relied on to give really accurate estimations under these circumstances.

The haematocrit estimation has been the most reliable of the three basic methods and has been widely used. The technique described by Wintrobe[8] in 1929 using venous blood has gained almost universal acceptance and is regarded as one of the simplest and most reliable of methods. Biggs and MacMillan,[9] for example, found the coefficient of variation to be only 1%. This valuable tool, however, has had the drawback that it usually requires venous blood which is not always readily available especially in infants and small children. Methods using capillary blood have long been available but have not gained wide acceptance. The recent introduction of a centrifuge specially designed for this purpose is likely to reawaken interest in this technique. Disposable capillary tubes containing anticoagulant are used and these only require very small samples of capillary blood. The technique is simple, requires only five minutes of centrifugation, and gives accurate results that are virtually interchangeable with Wintrobe readings.[10] It is even possible to adapt some existing centrifuges for this purpose.

A reliable haemoglobin reading combined with an accurate measure of the haematocrit enables an estimate of mean corpuscular haemoglobin concentration to be made. A low MCHC is the key to iron deficiency which is still a very common cause of anaemia (if not the commonest cause). That this index can now be calculated easily, rapidly and accurately from a drop of blood obtained by a prick of the finger represents a distinct advance in haematological diagnosis.

Even the technique of pricking a finger has not been neglected in this era of technical advance. It is to be hoped that the needle immersed in spirit and used on all and sundry has been superseded for all time by the availability of disposable needles. Sterile, sharp and individually wrapped, they are meant to be used only once. No longer need one fear the transmission of viral hepatitis, and the cost of a penny or two is more than compensated for by the elimination of this hazard.

It is not anticipated that electronic red cell counters will be used otherwise than as a research tool for some time to come; in any case the estimation of the red cell count is not of greater help in the diagnosis of the cause of anaemia than these other more readily available techniques. Cases of anaemia often require more detailed haematological diagnosis. But the demonstration that the patient is anaemic and that the anaemia is probably due to deficiency of iron as shown by a low MCHC is a good first step in the diagnosis of a common disease. Provided one is reasonably certain that the patient is not bleeding, there is no harm and often much virtue in a single course of oral iron therapy.

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6. King, E. J., Wootton, I. D. P., Donaldson, R., Sisson, R. B. and MacFarlane, R. G. (1948): *Ibid*, 2, 971.
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9. Biggs, R. and MacMillan, R. L. (1948): J. Clin. Path., 1, 269.
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DORS EN WATER

Gesonde en siek persone ondervind meermale per dag die sensasie van dors—'n toestand wat vergelyk kan word met honger, en wat slegs deur die inname van vloeistof geles kan word. By die siek persoon is daar egter velerlei faktore teenwoordig wat hierdie sensasie, nie net meer dikwels laat voorkom nie, maar soms ook ernstige afmetings laat aanneem.

Daar is byvoorbeeld die pasiënt wat deur sy mond asemhaal en sodoende die mond self uitdroog. Daar is ook die koorsige pasiënt, en die pasiënt met verlies van vloeistof en elektroliete, byvoorbeeld die diarree-lyer. Daar is gevind dat dors soms die aanvang van diarree voorafgaan as gevolg van die verlies van isotoniese vloeistof deur die lumen van die derm met vermindering van die ekstrasellulêre volume.[1] Nadat groot volumes vloeistof uit die pleurale of abdominale holte verwyder is, is dors 'n baie algemene simptoom. Om op te som sou ons kon sê dat 'n styging in die osmotiese druk van liggaamsvloeistowwe *mag* lei tot dors selfs sonder volumeveranderings, maar dat veranderings in die volume van die verskillende vloeistof-kompartemente *altyd* lei tot dors.[2] Dikwels word die pasiënt ook aangemoedig om baie water in te neem, byvoorbeeld na urologiese operasies.

Juis hierdie faktore maak dit noodsaaklik dat ons noukeurig moet let op die drinkgewoontes van die pasiënt en die aard van sy vog-inname. Dit is dus ontstellend om te verneem dat oor die waterkraffies in vier-en-twintig Bostonse hospitale gesê is: ‚growwe onhigiëniese toestande is gevind in twee derdes van die kraffies. Dooie, gedeeltelik ontbinde insekte is dikwels gevind. Die wande van sommige kraffies was slymerig; gelatineuse eilande van alge en fungi het in ander rondgedryf.'[3]

Die suig van water deur 'n strooitjie word blameer vir die terugvloei van speeksel in die water, terwyl die omkeer van 'n glas oor 'n waterbottel dieselfde effek mag hê.[3] Die vorm van baie waterbottels met 'n nou nek bemoeilik deeglike reiniging daarvan.

Hoe toestande elders in die wêreld gesteld is, is nie bekend nie, maar dit sou dui op 'n aspek van hospitaalhigiëne wat ons aandag verg.

Gardner,[4] in 'n studie oor die aspirasie van kos en vomitus, stel voor dat die standaard hospitaal-voedingsbeker, ontwerp om die voeding van bedlêende pasiënte te vergemaklik, verwerp moet word. Die ontwerp en styl van sy spuit is van so 'n aard dat dit moontlik is om vloeistof in die trachea af te gooi, en die bedekte rand lei daartoe dat die pasiënt onverhoeds gevang word deur vloeistof in sy mond. Die pasiënt moet òf sit en uit 'n gewone glas drink, òf deur 'n strooitjie die water opsuig. So nie, moet 'n maagbuis gepasseer word en alle vloeistof daardeur toegedien word.

Hierdie oorwegings laat mens aan die woorde van die drenkeling op see dink: ‚Water, water orals rond en nie 'n (suiwer) druppel om te drink nie.' 'n Oplossing, hoewel dit maklik lyk, kan ons nie gee nie. Die minste wat ons egter kan doen is om seker te maak dat die dorstige pasiënt skoon, vars water kry om te drink.

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POLIOMYELITIS

Poliomyelitis continues to attract world-wide productive research. It is fitting that this knowledge was shared at an international poliomyelitis conference and that the papers and discussions presented at the Conference in Geneva (July 1957) are published in book form.

In this symposium the magnitude of the problem of poliomyelitis is reported by delegates of many countries. Hence an effective vaccine capable of preventing the increasing epidemics and crippling paralysis has become a matter of priority. Every basic step such as tissue culture, viral multiplication, etc. is given detailed description to aid the production of a vaccine of this nature. Important research results compare the immunizing value of the orally administered, attenuated live-virus vaccines of Koprowski and Sabin, with the killed-virus Salk vaccine. The Salk vaccine has now been extensively used and attenuated live-virus vaccines have since undergone successful field trials in the Belgian Congo.

The Coxsackie and Echo groups of enterogenous viruses receive detailed attention not only because they have to be distinguished diagnostically from poliovirus, but because they are increasingly associated with diverse clinical entities, some of which simulate poliomyelitis.

Clinically, the new advances in the treatment of paralysis and respiratory involvement are well described. These methods allow the survival of many patients who, previously, would have died. The rehabilitation of these severely incapacitated victims of poliomyelitis by orthopaedic and other means receives urgent consideration. Survival without rehabilitation would appear wasteful and cruel.

Poliomyelitis is a magnificent book in which every aspect of polio is treated by an acknowledged world authority. No library or interested postgraduate should be without it.

1. Fourth International Poliomyelitis Conference, 1957 (1959): *Poliomyelitis*, Philadelphia and Montreal: J. B. Lippincott Co.

JOHN DONNE ON HIS OWN DESTRUCTION*

Fevers upon wilful distempers of drinke, and surfets, Consumptions upon intemperances, and licentiousnes, Madnes upon misplacing, or overbending our natural faculties, proceed from our selves, and so, as that our selves are in the plot, and wee are not onely passive, but active too, to our owne destruction; But what have I done, either to breed, or to breath these vapors? They tell me it is my Melancholy; Did I infuse, did I drinke in Melancholy into my selfe? It is my thoughtfulnesse; was I not made to thinke? It is my study; doth not my Calling call for that? I have don nothing, wilfully, perversly toward it, yet must suffer in it, die by it; There are too many Examples of men, that have bin their own executioners, and that have made hard shift to bee so; some have alwayes had poyson about them, in a hollow ring upon their finger, and some in their Pen that they used to write with: some have beat out their braines at the wal of their prison, and some have eate the fire out of their chimneys: and one is said to have come neerer our case than so, to have strangled himself, though his hands were bound, by crushing his throat between his knees; But I doe nothing upon my selfe, and yet am mine owne Executioner.

* *Complete Poetry and Selected Prose.* By John Donne.