

that the common presenting symptom of tiredness is very often a false alarm from the point of view of anaemia. Although tired patients are not frequently anaemic, it is still worth doing the haemoglobin to let the patient see that anaemia has been excluded.

I am sorry if this scramble through the 'bloodless field' of anaemia has been a little incoherent, but I hope that I have stimulated discussion.

## REFERENCES

- College of General Practitioners Report from general practice, No. 2 (1965) *Present State and Future Needs*.  
 Goodall, H. B., Hendry, D. W. W., Lawler, S. D., and Stephen, S. A. (1954). *Ann. Eugen. Lond.*, **18**, 325.  
 Gough, K. R., Phirkettle, J. L., Read, A. E. (1965). *Quart. J. Med.*, **34**, 1.  
 Royal College of Physicians of Edinburgh (1965). Publication No. 30. Symposium: *Disorders of the blood*, p. 110.  
 Williamson, J. (1964). *Lancet*, **1**, 1117.

## THE PROBLEM OF ANAEMIA

**Professor E. Maurice Backett**, B.Sc., M.B., B.S., M.R.C.P., D.P.H.  
 (*Professor of Public Health and Social Medicine, University of Aberdeen*)

Professor Backett presented his paper.

## DISCUSSION

**Dr Martin (Applecross)**: Can you recommend an inexpensive apparatus for haemoglobin estimation suitable for a small practice?

**Dr I. A. Cook**: We used to do haemoglobin with the grey wedge photometer for blood donors in the transfusion service, but because of the increase in quantities of blood needed we have had to change to something more simple. This is the use of a copper sulphate solution, which we buy commercially. We have three solutions, one for the males at a haemoglobin of 90 per cent and one for the females at 85 per cent and if they fail these tests, we retest in a lower solution of 75 per cent. We give them iron tablets if the haemoglobin is between 75 and 85 per cent. If it is below 75 per cent we write a letter to their doctor. I think this test should be quite feasible in practice: you can get the solutions commercially and you need some capillary tubing and a small needle. Prick the finger, take a drop in the capillary tubing and drop it into the copper sulphate solution: if it sinks

then the haemoglobin is above the standard for the solution. If it rises, the haemoglobin is below standard. It is a screening test, but it is a good screening test. We are using universal containers for this test with about 25 ml of solution in each, and 15 to 20 tests can be done before fresh solution is needed.

**Dr A. McGregor** (*New Deer*): How long has the Schilling test been available in Glasgow?

**Dr Macdonald**: I would hesitate to put a date on it but certainly it has been available for the last three to four years.

**Dr I. A. Cook**: From the family doctor's point of view I think it is regrettable that, although we have pushed this many times with the administrators, we do not have a radio-isotope service. The problem is with a patient who has been on cytamem for five to ten years; you do not know whether the original diagnosis was so-called pernicious anaemia, and this can only be diagnosed correctly by doing the Schilling test. Unless of course you are prepared to wait a whole year after stopping the cytamem in order to see what happens.

**Dr Cameron**: Anaemia in milk-fed babies, breast or bottle?

**Dr P. MacArthur** (*Inverness*): Anaemia will occur equally either in breast or bottle-fed babies on prolonged milk feeding. There is no iron in breast milk, National dried milk or in most of the British dried milks. No acceptable form of milk contains any reasonable amount of iron.

**Dr J. McGlone** (*Glasgow*): Am I right in thinking that the anaemias which result from prolonged taking of milk do not occur until after the child is a year old? If this is so can you explain why?

**Dr MacArthur**: There is enough iron in the baby's body when it is born to satisfy the first six to 12 months of growth, but the iron stores are then exhausted and future supplies of iron must be obtained from food.

**Chairman**: Two more questions, one from Dr MacArthur of Inverness and another from Dr McGlone of Glasgow.

**Dr MacArthur**: Is the MRC choice of the grey wedge colorimeter based solely on a slight statistical advantage over acid haematin method or has the difference in cost £40 compared with 12s. 6d., also been given weight.

**Dr McGlone**: Is the Sahli method completely outmoded?

**Dr Macdonald**: I would be quite emphatic that the Sahli is completely outmoded because it gives at least a 25-30 per cent inaccuracy in haemoglobin estimation. I would be quite emphatic that the most reliable method for quick haemoglobin estimation is the MRC grey wedge photometer. This is an accurate machine which is readily standardized, and with reasonable care it will give many years of reliable service.

**Chairman**: So far it has been completely impracticable for the average general practitioner, single-handed and isolated, to afford £42 capital, even though it is a good machine and will last a long time.

**Dr Macdonald**: I am quite certain that facilities should be made available for general practitioners to do haemoglobinometry if they so wish, and

the most reliable machine is undoubtedly the MRC grey wedge photometer. I submit that this should be part of the general practitioner's armamentarium just as a stethoscope is. I hope that general practitioners can be supplied with such instruments.

**Dr Marion H. Fraser (Giffnock):** Are there any figures available for the development of carcinoma of the stomach after prolonged treatment of pernicious anaemia with vitamin B<sub>12</sub>?

**Professor Beckett:** No. We have recently looked this up and there are no figures available. What we do very badly need is a study of the relationship between pernicious anaemia and carcinoma of the stomach. For every death expected on the null hypothesis, that is on 'no-relationship' between the two diseases, there are four deaths from carcinoma of the stomach among pernicious anaemia patients. This is very highly significant and must be studied.

**Chairman:** I have heard it said that patients under treatment for Addisonian anaemia ought to have a screening barium meal performed every so often.

**Professor Beckett:** Well we are back to the old business of the vulnerable age group, of 45 to 64. Last year (1964) in Britain three times as many people died of cancer of the stomach as died in *all* motor vehicle accidents. This is an economically important age group. Regular screening, as long as it does not involve too much x-ray exposure, and especially if we can improve exfoliative cytology for cancer of the stomach may well help. Both these diseases occur in families, and they are particularly common in Scotland.

**Dr Cook:** We have, like some other regions, studied a few of the relatives of cases of pernicious anaemia, and some had antibodies to the cells of gastric mucosa. How far should you go, testing these relatives? We have seen three families in which people below the age of 40 had these gastric antibodies and they also had borderline vitamin B<sub>12</sub>. Perhaps in ten years time they will have developed pernicious anaemia. It leaves little doubt that there is a genetic background.

**Dr McGregor:** In Westray in Orkney which is a very limited community we found that all the cases of pernicious anaemia were in one family and that they had come down through two or three generations. In our present practice we have pernicious anaemia in at least two generations of one family.

**Chairman:** I am going to take two questions which highlight a common problem in practice.

**Dr Kennedy (Greenock):** If Tabs Ferrous Sulphate are quite satisfactory in treating anaemia, why are there so many iron preparations available?

**Dr Kuenssberg (Edinburgh):** Is blunderbuss therapy for anaemia encouraged? There does not seem to be evidence for the addition of vitamin C and B.

**Chairman:** A very considerable problem in my practice is the patient who says that either he vomits his iron, or he gets appalling constipation or diarrhoea.

**Dr Macdonald:** I would agree entirely that the oral iron preparation of choice is ferrous sulphate and I would condemn polyhaematinics. There are, nevertheless, patients who tell you that such and such a colour of tablet gives them nausea or diarrhoea or intestinal upsets, but who will take the same type of tablet in another colour, without untoward symptoms.

**Chairman:** It is not my experience that changing the colour of tablets makes a patient tolerate them better. In difficult cases the use of such a preparation as sytron is desirable as the liquid is sometimes tolerated better than the tablets.

**Dr MacArthur:** I would like to support Dr Macdonald. Our experience is that children and babies given ferrous sulphate in hospital do not develop dyspepsia. At home they do. I think that many of you are familiar with Stanley Davidson's study of this in Edinburgh where he gave ferrous sulphate tablets and identical-looking sugar tablets to a large group of nurses, in the Royal Infirmary. The incidence of dyspepsia was exactly the same with the sugar tablets as it was with the iron tablets. He concluded that the iron itself had no dyspeptic effect.

**Dr J. D. E. Knox (Edinburgh):** With due respect to John Richmond and Professor Davidson, I just wonder if in a captive population of 200 nurses the results are entirely applicable to the conditions in general practice. Nevertheless, I think that the question of the patients' reactions to iron preparations is largely a psychological one.

**Dr Cruickshank (Kintore):** May I suggest that the dosage is important in the production of the symptoms?

**Dr Kennedy (Greenock):** What are your criteria for *parenteral* iron therapy?

**Dr Macdonald:** There are a number of people who do not seem to tolerate any oral preparations, so there may be a very few indications for putting them on parenteral iron, but I like to check their serum iron-combining power first. I think ulcerative colitis sometimes reacts very badly to oral iron, and these patients may need parenteral iron. Some of the partial gastrectomy group do not seem to tolerate or respond to oral iron very well. One of the commonest indications for parenteral iron is speed in getting the haemoglobin up and this may be in the last three or four weeks of pregnancy, or before an operation. The last group is borderline iron deficiency and recurrent iron deficiencies. There might also be a few cases that need parenteral iron because they have got very low iron stores.

**Dr Knox:** I would add one further group to this. Some cases of active rheumatoid disease, whether or not they are iron-deficient, respond in a general way to parenteral iron therapy in large doses. In my limited experience in practice the commonest indication for parenteral iron therapy is panic, last minute business in pregnancy and those who cannot and will not co-operate.

**Dr Cook:** I do not see it here in the North of Scotland, but in Glasgow I used to see collapse with a haemoglobin below 50 per cent with typical

megaloblastic anaemia after delivery.

**Dr Macdonald:** The Glasgow area is unique in that the antenatal and postnatal patients are resistant to attending either their general practitioners or the clinic. Those of you who are familiar with Glasgow will no doubt bear me out when I say that on many occasions the woman literally comes off the bus in Duke Street and says, "I think I am in labour", and usually she is right. We had a girl of 18 whom I was asked to see immediately she was admitted to hospital; she was already in labour, had a haemoglobin of 3.2 grams and had very severe diarrhoea, because she had a florid megaloblastic anaemia of pregnancy. The baby was delivered and the mother was given packed cells and folic acid, and she made good recovery. A woman of 23 whom I saw the same week had been looked after by a general practitioner and he was worried that the haemoglobin was a bit low in the postnatal period. This patient had received oral iron during her pregnancy and in the postnatal period, but the haemoglobin had not risen at all: it was 5.2 grams. Again, she had a florid megaloblastic anaemia which responded to folic acid.

**Dr McGlone:** I have been in practice in Glasgow with about 240 confinements a year, and I am very surprised if a patient delays coming to me until after the third month. I am one of the people who give routine iron right from the time the patient comes, perhaps they do not all need it, but like bringing the urine this is a very good habit. They get used to the routine and generally speaking we can keep the haemoglobin up in the 80 per cent region; if it drops we begin to ask questions. Anaemia tends to be endemic in Glasgow, but my patients do come for their treatment and keeping the blood up in the antenatal period is probably *the* most important part of antenatal care.

**Dr Macdonald:** I would like to compliment you most sincerely for the way in which you treat your antenatal patients. I agree entirely that they should all be given routine therapy.

**Dr Macintosh (Lewis):** I give regular oral iron to all my antenatal patients and I never give them folic acid, because I thought this might precipitate neurological complications. If one were to give them vitamin B<sub>12</sub> as well as folic acid would there be any risk of neurological complications?

**Dr Cruickshank (Kentore):** Is folic acid deficiency in pregnancy of prognostic significance in the development of megaloblastic disease in later life?

**Dr Macdonald:** Most of these cases respond to folic acid very well. They may get another folic acid deficiency in a later pregnancy, but I have not seen any of them to go on to vitamin B<sub>12</sub> deficiency.

**Chairman:** If you give folic acid and vitamin B<sub>12</sub> together with your iron, would you avoid neurological complications?

**Dr Macdonald:** You would, but how long should you go on giving the cytamen afterwards?

**Dr A. A. Robison (Edinburgh):** Would Professor Backett expect

co-operation from a patient in treating illness diagnosed on need rather than on demand?

**Professor Backett:** We have been examining the attitude of patients to the new problems of medicine for the last seven or eight years, and in the south prior to that. To our surprise we have been overwhelmed with the co-operation of patients. For example, just recently 97 per cent of 7,000 people co-operated in a postal survey which was designed to test an area of ill health.

**Dr Murchison (Inverness):** Do you think that the clinic set up by Dr Horne, M.O.H. of Glasgow, which offers testing of haemoglobin, blood pressure, etc., will serve a useful purpose?

**Professor Backett:** I do not see the development of this kind of medicine through the public health services, except as an interim measure. It seems to me that if you are really dealing with chronic disease, which is essentially a family matter, it is quite improper to approach the problem through services which are essentially impersonal. Because there is just no time, no money, no space and no anything, we must make do as best we can at the moment.

**Dr W. W. Fulton (Glasgow):** This was only a pilot experiment which ran during the Glasgow Fair fortnight on certain evenings of the week for men over 65. This was a multiple screening centre, and among other things they intended to check the haemoglobin of everybody who went there. In fact this was the only part that broke down because they simply could not keep pace with the numbers coming in. The results are not yet available; the things which were looked for were glaucoma, obesity, abnormal constituents of the urine and so on. The general impression was that the majority of the people who went were hypochondriacs who had something wrong with them; and in many cases their own doctors knew what was wrong with them already. This reinforces what has been said that one must be very careful in mounting an experiment of this kind and spending public money if you are only going to find out what you already know.

## CLOSING REMARKS

**Dr G. H. Clement (Past Provost of Faculty):** It has been a very great pleasure to have Dr Annis Gillie as a distinguished visitor to the North of Scotland Faculty and this symposium today. As you all know Dr Gillie is President of the College of General Practitioners and has been a tower of strength, wisdom and inspiration in the growth of the College since its inception. Dr Gillie has been a general practitioner during most of her professional life and, though she has now retired, she is still actively embroiled in the affairs of medicine, with the Oxford Regional Hospital Board and with other bodies. We have all, I think, met Dr Gillie today, and we all know of her intense interest in general practice and her brilliant chairmanship of the Gillie Committee.

Now we are all very grateful to Dr Gillie for undertaking this long