Medicine in Old Age

Anaemia in the Elderly

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Anaemia is always pathological and the clinical impression of its presence or absence often erroneous; it is not a concomitant of ageing. The reported incidence has varied greatly. Pincherle and Shanks¹ found it in only 0.42% of 2,000 business executives, 300 of whom were over 60 years. On the other hand, Parsons and his colleagues,² in a community survey, found an incidence of 7.2% in men and 11.1% in women in the age group 65-74 years, and in 20.8% and 23.3% respectively in those who were older. The Health Department's Nutritional Panel³ gave a figure of 7.3%, which was about the same for men and women. The incidence among hospital admissions is about 30%.

The following groups of old people are particularly at risk of developing anaemia: those living alone, with mental deterioration, with apathy or depression, over 75 years of age, with diminished mobility, who have had gastric surgery, and who have been anaemic in the past.

Causes

Occult bleeding from the gastrointestinal tract is a frequent cause, but others—including insufficient intake of nutrients, diminished absorption, and general disease—are also important. Contributory factors, such as atrophic gastritis, chronic infection, carcinoma, renal disease, and the development of antibodies may also be present, and several factors may operate simultaneously.

Red cells from the marrow circulate for about 120 days and are then destroyed by the reticuloendothelial system, their iron and globin being reutilized. Derangement at any stage leads to anaemia.

Types of Anaemia

DEFICIENCY

The deficiency anaemias are of paramount importance and may be classified according to the deficient haemopoietic factor.

Iron-deficiency Anaemia

Iron-deficiency anaemia is the most common type. Haemoglobin formation is diminished, resulting in hypochromia with a low mean corpuscular haemoglobin concentration of 32%

or less. The red cells are usually smaller than normal. There is sideropenia and reduction of iron saturation to below 16%, a level below 10% being pathognomonic.⁴ Marrow smear and sections have a diminished iron content.

In iron-deficiency anaemia due to blood loss the latter has usually occurred from the gastrointestinal tract, and occult blood testing of the stools is mandatory in every anaemic patient. When repeat tests are positive x-ray investigation of the gastrointestinal tract is necessary, provided the bleeding is not due to such causes as thrombocytopenia or a raised blood urea. Microscopic examination of the urine should also be part of routine investigations.

Vitamin B₁₂—deficiency Anaemia

In vitamin B₁₂ deficiency red cell formation is defective. Macrocytes appear in the peripheral blood, and the marrow becomes megaloblastic.

The serum B₁₂ value is below 111 pg per ml, and usually considerably so. (It is important to remember that if a bacillary method is used for estimating this level antibiotic therapy, particularly of ampicillin, should have been discontinued for at least three days, as otherwise a false low value may be obtained).

Nevertheless, a low serum vitamin B₁₂ value can be obtained when the peripheral red cell is normal or hypochromic. Findings in pernicious anaemia include achlorhydria and improvement in vitamin B₁₂ absorption when it is combined with intrinsic factor. Gastric parietal cell antibodies (IgG) are present in 80% and intrinsic factor antibodies (IgA) in 50% of cases. The incidence is around 7 per 1,000, though it is higher in those with rheumatoid arthritis or hypothyroidism. There is a familial pattern. Other reasons for vitamin B₁₂ deficiency are partial gastrectomy, malnutrition, ileal malabsorption, and increased utilization of the vitamin by proliferating organisms in jejunal or duodenal diverticula.

Folate Deficiency

Folate deficiency may be due to malnutrition; malabsorption from jejunal disease; secondary to drugs, particularly those used in epilepsy; increased utilization, as in myelofibrosis; or excess loss, as in exfoliative dermatitis. The full clinical picture should be evaluated before a certain diagnosis is made. Measurement of the faecal fat may be necessary, and also x-ray examination of the small intestine. Its incidence increases with age, presumably owing to dietary difficulties.

In folate deficiency the fully developed blood picture is indistinguishable from that produced by vitamin-B₁₂ deficiency, as the two factors are interrelated. The serum folate value is below 2.5 ng per ml and the red cell value less than 140 ng per ml of packed red cells; but this latter measurement is a poor guide when there is associated vitamin B₁₂ deficiency.

Other Deficiencies

In vitamin C deficiency the cells are normocytic though an occasional macrocyte may be seen. In deficiency of vitamin B₆ (pyridoxine) there is hypochromia with a low mean corpuscular haemoglobin concentration, because the utilization of iron by the red cells is impaired.

Mixed Deficiencies

Mixed deficiencies are common, and are pinpointed when the various serum values are determined in all anaemic patients. The cells may be dimorphic or normocytic, but no appearance excludes the diagnosis.

"Marrow" Anaemia

True aplasia is unusual, but relative marrow failure is fairly common. There is mild normocytic normochromic anaemia with a poor marrow response. The cause has not been elucidated, though it is probably multifactorial. Infiltration with fibrous, myelomatous, or neoplastic tissue may result in a leucoerythroblastic picture, which is characterized by a leucocytosis and a mixture of immature red and white blood cells.

HAEMOLYTIC ANAEMIA

The overt type of haemolytic anaemia, due to increased fragility of the red cells or damage by toxins, drugs, or antibodies, is less common than the latent variety. In this variant the red cell life is reduced, though not enough to produce anaemia if the marrow is functioning normally. Defects in both the peripheral cells and the bone marrow may be present in renal failure, liver dysfunction, carcinoma, and terminal disease.

Presentation of Anaemias

When anaemia is of rapid onset there is weakness, shortness of breath, and giddiness, but when it develops slowly, as it usually does, the symptoms are often ascribed to ageing. Mental changes, angina pectoris, or heart failure may all be the presenting features, together with apathy, depression, or diminished mobility. The overall picture can be one of multiple lesions, with the anaemia being part of a wide spectrum of diseases.

In making the diagnosis a full history must be taken, paying special attention to the social environment, mental state, and mobility. Diet and mastication should be assessed, and also bowel action. Previous surgery or anaemia should be noted. The physical examination must be complete as no system can be neglected for a possible cause. The sequence followed in the investigations depends a great deal on the clinical features. Laboratory tests are necessary. It is helpful for the family doctor if the advice of a physician or pathologist is readily available, together with an open door to the pathology department. The tests that are necessary are directed towards the clarification of formation, destruction, and loss of the red blood cells.

Treatment of Deficiency Anaemias

IRON DEFICIENCY

About 200 mg of elemental iron are given daily between meals, and the same dosage continued for at least six months after the haemoglobin has reached normal levels, to replenish the

body stores. If intake is unreliable the calculated deficiency may be corrected by intramuscular therapy.

VITAMIN B₁₂

One thousand μ g is given weekly for four doses and then three-monthly, unless there is renal or hepatic disease when the same dosage is given two-monthly, owing to increased body turnover.⁵ The reticulocytosis should reach its highest level by the seventh day. If the cell count is one million the injection should give rise to a reticulocytosis of 40% of the red cells, while with one of three million the response should be 10%. Hydroxocobalamin is preferable to cyanocobalamin, and life-long injections are necessary in pernicious anaemia, ileal malabsorption, and when dietary inadequacy cannot be corrected. Care is also necessary to ensure that iron or folate deficiency, or both, does not develop.

FOLATE DEFICIENCY

Five milligrammes of folate three times a day are given until the blood count is satisfactory, and then the dose is reduced to five mg daily. The body stores of vitamin B₁₂ must be normal as otherwise neurological complications develop. When the diagnosis is in doubt a cover dose of 500 μ g B₁₂ should be given three-monthly, or the vitamin B₁₂ serum level should be confirmed as being normal every six months. Only when there is a continued cause for the deficiency, such as malabsorption or antiepileptic therapy, need long-term treatment be given.

BLOOD TRANSFUSION

Whole blood is necessary when there is acute blood loss, but otherwise haematinic therapy usually suffices. Sometimes, however, packed red cells, 400 ml or thereabouts, repeated if necessary, may be life saving when the severity of the anaemia has caused heart failure, mental confusion, or extreme apathy. Patients with aplastic anaemia have to be transfused regularly, and the procedure is often necessary when urgent surgery is contemplated, or when early radiological investigation of the gastrointestinal tract is essential.

Management

The advisability or otherwise of home management depends on the degree of illness, the extent and type of anaemia, the availability of the hospital service, and the social circumstances of the patient. Several questions arise: Is the anaemia due to a primary blood disorder, such as leukaemia? Is it secondary to malnutrition, malabsorption, blood loss, drug therapy, or general disease? Is it separate from the other abnormalities that may be present? Most of the answers are obtained by studying the haemoglobin level, the blood film, and the absolute values; by taking a careful history paying particular attention to food intake; and by carrying out a detailed physical examination, noting the presence or absence of adenopathy, splenomegaly, purpura, and the tell tale signs of malnutrition, chronic infection, or carcinoma. Occult blood testing of the stools is necessary, and if the anaemia is refractory or the cause obscure, consideration given to the possible presence of hypoplasia or haemolysis. The level of blood urea may supply the answer.

Whenever suitable the treatment should be at home, but the anaemia should never be dismissed as an incidental finding, of little or no consequence, because the underlying cause may be of vital significance. Ideally, the serum values of iron, vitamin B₁₂, and folate should be obtained despite the complexity of their interrelationship; but it is justifiable to give

all three haematinics as an emergency when the patient is seriously ill—though future management is simplified if a blood sample is taken beforehand.

Prevention

Anaemia has a high morbidity and therefore every effort should be made to reduce its incidence. Two methods are practicable. Firstly, primary prevention, by ensuring that all elderly people receive adequate quantities of protein and of haemopoietic factors in their daily diet—that is, 10–12 mg iron, 2–4 µg B₁₂, 100 µg folate, 35 mg vitamin C, and 2 mg pyridoxine. Ignorance, poverty, prejudice, apathy, and isolation are some of the resisting forces. The other method is secondary prevention—by detecting and treating the early case, (that is,

when the haemoglobin level is around 11.6 g per 100 ml) and thereby prevent, or delay, progression. Regular home visiting by doctors or nurses, or both, is essential, and special attention should be paid to those at risk.⁶

References

- ¹ Pincherle, G., and Shanks, J., *British Journal of Social and Preventive Medicine*, 1967, 21, 40.
- ² Kilpatrick, G. S., Parsons, P. L., and Withey, J. L., *Practitioner*, 1965, 195, 656.
- ³ *A Nutrition Survey of the Elderly*, Reports on Health and Social Subjects, No. 3, p. 57. London, H.M.S.O., 1972.
- ⁴ Wintrobe, M. M., *Clinical Haematology*, 6th ed., p. 597. London, Kimpton, 1967.
- ⁵ Adams, J. F., and Boddy, K., *The Cobalamins*, A Glaxo Symposium, p. 166. ed. H. R. V. Arnstein and R. J. Wrighton. Edinburgh and London, Churchill Livingstone, 1971.
- ⁶ Thomas, J. H., and Powell, D. E. B., *Blood Disorders in the Elderly*, p. 133. Bristol, Wright 1971.

Conference Reports

Computers and Confidentiality in Medicine

As part of the 27th World Medical Assembly in Munich last month there was a two-day scientific conference on computers and confidentiality in medicine. The first morning (Wednesday, 17 October) was concerned with the threat to patients' privacy and the remainder of the conference with the use of computers in medicine.

Medical Confidentiality

Under the chairmanship of Dr. Ronald Gibson (Britain) the first session began with a keynote paper "The Privacy of the Individual" by Dr. Vincent G. Doyle, a general practitioner from Ireland.

Privacy of the Individual

Privacy was one of the individual liberties, said Dr. Doyle; it was a right cherished by man down through the ages and had been respected by every civilization worthy of the name. Without it society would be the poorer. But society was encroaching more and more on this fundamental liberty, to obtain information for the operation of the many complex services which we as individuals expected the State to provide.

In medical matters the demands of the State were no less than in other spheres, and it was sometimes difficult for a doctor to decide where his duty lay when asked for confidential information about his patients. Who was to say how far this invasion of medical privacy should go, and who was to safeguard the details passed on to the State? Certainly not the patient who sought the benefit of the services, nor the doctor who supplied the information on his behalf; but the profession as a whole surely had a responsibility to see that the inroads of the State into medical privacy were not unreasonable and that the material so obtained was protected in a way that would satisfy the principles of medical secrecy. A patient took for granted, and had a right to expect, that any information about him acquired by his doctor in a professional

capacity would be treated as confidential. Secure in this knowledge he would communicate without reserve, supplying all the information necessary for the diagnosis and treatment of his condition.

The advent of the computer had brought a new dimension to medical care. We could now have a unified medical record of every individual, from which appropriate information could be extracted by the various health and welfare agencies. The advantages to the community and the individual of unified care were undoubtedly great, provided the privacy of the records was safeguarded. Dr. Doyle saw no danger in the wider dissemination of medical information in this way, provided the information extracted from the different agencies was limited to their essential requirements and those in possession of it respected the confidential nature of their work.

LEGAL POSITION

One would expect that, in a modern jurisprudence, the preservation and protection of professional privacy would be accepted as public policy and enshrined in the law. In many countries this was not the case, and the obligation in law to tell "the truth, the whole truth, and nothing but the truth" was often held to outweigh the undoubted advantage to the public of protecting the private character of communications to professional advisers. The harshness of this rule was to some extent modified by the doctrine of privilege, but protection was accorded only in particular cases. The reason for favouring legal communica-

tions was once explained by an English Lord Justice as follows: "Truth, like all other good things, may be loved unwisely, may be pursued too keenly, may cost too much. And surely the meanness and mischief of prying into a man's confidential consultations with his legal adviser, the general evil of infusing reserve and dissimulation, uneasiness, suspicion, and fear into those communications which must take place uselessly or worse are too great a price to pay for truth itself." That judge's words applied with at least equal force to the doctor-patient relationship, but the Courts very often did not share that view. Dr. Doyle submitted that similar privilege ought everywhere to be extended to professional communications between a doctor and his patient.

Doctor-patient Relationships

After the keynote address, an invited panel opened a discussion on privacy in the doctor's relationship. The first speaker was Dr. Ronald Gibson. He said doctors would be wise to consider what was being sacrificed in order to make room for the advances in health services, health education, preventive medicine, and total medical care in recent years. Two factors were mainly involved. The first was the almost total absorption of the individual into the State complex, while the second was the broadening of human attitudes and behaviour, so that there was now a reaction, sometimes exaggerated, against ethical standards of the past. These together might lead to depersonalization of the individual, and the medical profession today faced the risk of accepting depersonalization of patients, an erosion of ethical standards, and an invasion of the unique and priceless doctor-patient relationship.

In the hospital the modern doctor was now one unit in a growing team of trained workers, all of whom shared the patient's secrets. In medical care outside the hospital the same consideration applied. The concept of a team, all caring for an individual, was wholly desirable,