ESTIMATION OF INDIVIDUAL PLASMA B_{12} COMPOUNDS IN NORMAL SUBJECTS AND PATIENTS WITH DERANGED B_{12} METABOLISM

J. C. LINNELL, A. V. HOFFBRAND, T. J. PETERS, AND D. M. MATTHEWS (*London*) Estimation of individual plasma cobalamins by thin-layer chromatography, bioautography, and photometric scanning requires only 5 ml of blood and provides an additional means of investigating disturbances of B_{12} metabolism. In normal plasma, methylcobalamin predominates. The second major component separated by the system used, 'Co–B_{12}', is deoxyadenosyl coenzyme B_{12} with some hydroxocobalamin. A minority of samples show traces of cyanocobalamin (Linnell, MacKenzie, and Matthews, 1969; Linnell, MacKenzie, Wilson, and Matthews, 1969). In most cases of pernicious anaemia, the pattern of cobalamins is disturbed, Me–B_{12} being disproportionately reduced; in four of 20 cases Me–B_{12} was undetectable. A similar disturbance may occur in B_{12} deficiency due to gastrectomy or intestinal disease. Of three vegans with low total B_{12}, two had a normal pattern, but in one Me–B_{12} was undetectable. In two of six cases of liver disease the pattern was grossly disturbed, eg, total B_{12} 400 $\mu\mu$g/ml, Co–B_{12} 300, Me–B_{12} 100; total B_{12} 1,400, Co–B_{12} 1,100, CN–B_{12} 300, Me–B_{12} < 100. Two cases of chronic myeloid leukaemia with raised total B_{12} had a normal pattern. After oral administration of physiological doses of CN–B_{12}, plasma CN–B_{12} rises, showing that some CN–B_{12} is absorbed unchanged.

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REFERENCES

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AMINOACIDURIA IN PERNICIOUS ANAEMIA

D. M. DAVIES, J. G. HEATHCOTE, and F. S. MOONEY (*The University, Salford, and St Helens Hospital, St Helens, Lancs.*) An increased excretion of amino acids was observed in the urine of pernicious anaemia patients. The total amino acid concentration varied over the range 105 to 149 mg per 100 ml when compared with a normal range of 57 to 81 mg per 100 ml.

Effective vitamin B_{12} therapy resulted in a sharp fall in the total amino acid concentration to subnormal values (range 13 to 47 mg per 100 ml). The amino acid concentration increased gradually towards the normal value as treatment progressed.

The aminoaciduria was associated with an increased concentration of amino acids in the blood plasma. Thus, in two untreated patients the concentration of amino acids in the plasma was 65 mg per 100 ml as compared with a normal range of 7 to 21 mg per 100 ml. When treatment commenced, the plasma level fell but more rapidly than the urinary concentration.

These observations suggested that vitamin B_{12} had stimulated a general protein anabolism, particularly as the urea N and total N levels fell during treatment in the same manner, thus indicating that the process was not one of simple deamination.

In a second study a steady increase in amino acid concentration in the urine was observed in a group of patients on placebo during which time they remained clinically well and their blood picture did not deteriorate. Re-institution of therapy produced a fall in this concentration as also in the urea N and total N.

A third group of patients was kept continuously on B_{12} therapy for periods up to two years and during this period a steady and spontaneous increase towards normal amino acid values occurred. In no case, however, was the lower limit of normal reached during this time.

THE IRRELEVANCE OF ADHESIVE PLATELET ESTIMATION

R. D. EASTHAM (*Frenchay Hospital, Bristol*) It was found that adhesive platelet counts were not of clinical use during long-term anticoagulant therapy. The theoretical risk of the development of platelet thrombi was calculated and related to the platelet count. The variation in the development of adhesiveness by platelets, the possible control of platelet adhesiveness by plasma factors, and the antagonistic action of platelet enzymes which destroy ADP and their activation by other plasma factors, were discussed. It was suggested that these factors make the estimation very unsatisfactory, and it was also suggested that direct measurement of Zeta potential at a plasma-glass interface by avoiding the unpredictable responses of platelets, might be a more fruitful approach to the problem of detecting thrombotic subjects.

SOME HAEMATOLOGICAL ASPECTS OF RENAL TRANSPLANTATION

MURIEL J. SEAMAN (*Addenbrooke's Hospital, Cambridge*) The haematological findings following renal transplantation in Cambridge over a period of approximately four years were reviewed. Abnormalities found involved red cells, white cells, and platelets. The normochromic anaemia of chronic renal failure frequently persisted for a variable period after transplantation. Red cell macrocytosis was common but was rarely associated with megaloblastic change. Both leucocytosis and leucopenia were seen, the latter probably related to imuran therapy, as was the occasional case of thrombocytopenia.

An elevated haemoglobin and haematocrit level associated with a reduction in plasma volume was found in four cases, two of which were discussed in detail.

Three cases of haemolytic anaemia were enumerated two of which were associated with the development of red cell antibodies despite the coincident immunosuppressive therapy.

Coagulation abnormalities included one case of hypofibrinogenaemia associated with thrombocytopenia and haemorrhagic varicella. The clinical course in relation to immunosuppresive therapy was discussed. The practical difficulties of obtaining white-cell-poor blood for transfusion to potential kidney transplant recipients were enumerated.