TROPICAL MEGALOBLASTIC ANAEMIA IN SOUTH INDIA

S. J. BAKER

Departments of Medicine and Clinical Pathology, Christian Medical College Hospital, Vellore.

(Received for publication March 3, 1958)

Tropical megaloblastic anaemia has been known for many years. It has also been known that this megaloblastic anaemia would respond to crude liver extracts, but that often it would not respond to more refined extracts (Wills, 1948). However the exact nature of the lesion responsible for the anaemia has seldom been clearly defined, and cases have been variously labelled as “megaloblastic anaemia associated with sprue”, “nutritional megaloblastic anaemia” and “pernicious anaemia”, depending chiefly on the presence or absence of other manifestations of the sprue syndrome, and the presence or absence of free hydrochloric acid in the gastric juice. Modern investigational methods have put new tools in our hands, which enable us to investigate more precisely the nature of the defects involved in different types of megaloblastic anaemias. It is the purpose of this paper to present the results of investigation of sixty cases of tropical megaloblastic anaemia studied with the aid of modern techniques.

MATERIAL AND METHODS

The subjects studied were drawn from the patients attending the medical and surgical departments of the hospital. The majority were residents of various parts of South India. As with the general hospital attendance, males predominated over females, and the majority, but by no means all, came from poorer social classes.

Haematology: Standard haematological techniques were employed as described by Dacie (1956). All red cell counts were done on at least 2,000 cells. Red cell and reticulocyte counts, and haemoglobin and PCV estimations were done frequently, usually daily, in all cases.

Vitamin assay. Serum vitamin Bu estimations were carried out by the microbiological method as described by Ross (1952) using Uglena gracilis,
Radioactive vitamin Bjj studies. In every case radioactive vitamin Bjg absorption studies were carried out using the faecal excretion technique of Heinle, et al (1952). The full details followed have been given elsewhere (Baker and Mollin, 1955).

12

TROPICAL MEGALOBLASTIC ANAEMIA

Vitamin labelled with Go°° or Co°° was used in these experiments. The specific activity of the material varied according to the batch, but was never less than 0.5 microcurie per microgram. For each absorption test 1 microgram of the vitamin was given. This material was stored in multiple small containers at -20°C, and the content was checked from time to time by microbiological assay. Whenever there was any doubt about the validity of the faecal excretion tests, the results were checked by the urinary excretion test of Schilling (1953) or the hepatic uptake method as described, by Glass, et al (1954).

Measurements of radioactivity in the stools were done by counting the stools in a ring Geiger counter consisting of 8 Geiger tubes arranged in parallel. The radioactivity in urine, and the surface counts, were measured by using a scintillation counter containing a thallium activated potassium iodide crystal, (E. R. D. “Universal Scintillation Counter”).

Intrinsic factor. A dried, partially purified extract from hog mucosa, of known activity was used - the same batch being employed throughout the experiments.

Fat balance studies Fat balance studies were performed by placing the patient on a measured-intake of 50 g of fat per day. For an initial period of three days specimens were discarded, and then subsequently the daily output of fat in the stools was measured for at least six days. The results were expressed as a three day running mean. The fat in the stools was estimated by the wet method of van de Kamer, Huinink and Weyers (1949).

Glucose tolerance tests : Glucose tolerance tests were done by giving the fasting patient 50 g of glucose, and measuring the rise in the venous blood
sugar at half hourly-intervals. The blood sugar was estimated by the method of Folin & Wu (1920) modified to give true glucose values.

Radiology: Radiological examination of the intestines was carried out using a “non-flocculating” radio opaque medium. The full details of the technique employed have been described by Patterson and Baker (1958).

Test meals: Test meals were performed using a subcutaneous injection of 0.25 mg of histamine as a stimulus to acid secretion.

RESULTS

Clinical Features

Age and sex: The age and sex of the patients is set out in figure 1. It will be seen that the disease occurred most commonly in the 20-30 age group, and that it was more common in males than females. However this sex difference may only reflect the fact that more males attend the hospital than females. The ratio in each case being approximately the same.