intestine is normal with no evidence of malabsorption." Three-day facial fat excretion and xylose absorption test were normal.

Although the serum $B_6$ level was not available at the time, the evidence from blood, marrow, and barium meal examinations suggested vitamin $B_6$ deficiency due to pernicious anaemia, and treatment was started with hydroxocobalamin 1 mg intramuscularly daily for four days, and then weekly. There was no haematological response, and the haemoglobin fell further to 34%. The patient was then admitted to the Luton and Dunstable Hospital (under Dr B P Harrold), where folie acid was added to her treatment, again with no response in the peripheral blood or marrow. A blood transfusion brought her haemoglobin up to 10.8 g/dl, but a subsequent marrow aspiration confirmed the previous findings of a megaloblastic picture, with a few ring sideroblasts, insufficient to justify a diagnosis of sideroblastic anaemia. At the suggestion of the haematologist (Dr J R B Williams) a therapeutic trial of pyridoxine was begun with a dose of 50 mg twice a day. Seven days later the marrow had reverted to normal and the patient was discharged on pyridoxine alone.

In the following weeks her haemoglobin gradually returned to normal levels. After the diagnosis had been established the serum $B_6$ level, in a sample of blood taken at the start of the investigation and before the administration of hydroxocobalamin, was reported as normal at 360 ng/l. A Schilling test was also normal.

Comment

Administration of combined oestrogen-progestogen oral contraceptive agents (OCA) can lead to a disturbance of tryptophan and vitamin $B_6$ metabolism owing to the oestrogen component causing induction of tryptophan oxygenase in the liver. This causes increased metabolism of tryptophan and hence an increased need for the necessary coenzyme pyridylo phosphate.1 Boots et al3 report that a tenfold or greater increase in vitamin $B_6$ requirements is necessary to compensate for this effect. Rose et al4 reported that a subclinical vitamin $B_6$ deficiency may result, and Adams et al5 reported that a form of depression found in OCA users responds to pyridoxine administration. Brown et al6 concluded that a small subgroup of women may exist who are particularly vulnerable to vitamin $B_6$ deficiency when taking OCA, but I can find no previous reports of megaloblastic anaemia associated with OCA usage in a patient with no other apparent cause and responding to vitamin $B_6$ administration. I suggest that the above patient represents such a case.

Because of the difficulty in detecting prolactin receptors in breast-tumour specimens obtained at operation, we postulated that the stress of the procedure might lead to raised serum prolactin levels with blocking of available receptor sites. We therefore studied the changes in serum prolactin concentrations during anaesthesia.

Patients, methods, and results

Nine men and ten women undergoing general surgery and nine women having a lump in the breast removed were studied. Patients receiving medication known to affect serum prolactin concentrations (such as chlorpromazine) were excluded. Venous samples were obtained before induction of anaesthesia and at about 15-minute intervals during the operation. The number of samples obtained depended on the length of the operation. Premedication was with atropine and papaveretum. Anaesthesia was induced in all cases with thiopentone and suxametohalam and maintained with $N_2O$ and halothane.

Radioimmunoassay of human prolactin used materials supplied by NIH and human standard supplied by Dr H Friessen (code 72/11/23). Radio-


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