LETTER TO THE EDITOR

Anaemia and haemolysis in pregnancy due to rapid folic acid and vitamin B12 depletion

Dear Editor,

Folic acid and vitamin B12 deficiencies can induce haemolysis, mimicking the HELLP syndrome.[1] None of the reported cases, however, record how fast such vitamin depletion can occur. Here we report rapid vitamin depletion in a 25-year-old pregnant vegetarian woman, without a history of anaemia.

CASE REPORT

A 25-year-old Moroccan gravida 2 was admitted at 35 weeks gestation with anaemia, haemolysis, thrombocytopenia and elevated transaminases without pre-eclamptic symptoms. Her first pregnancy was complicated by severe pre-eclampsia. At 31 weeks gestation she delivered a male infant (1260 grams), whom she breastfed for three weeks. At five months postpartum, investigations revealed mild to moderate hyperhomocysteinaemia, with normal vitamin concentrations (*table 1*).

Seven months later in a subsequent pregnancy, having not taken periconceptional folate supplements, she participated in a double-blind randomised study of folic acid (5 mg) versus placebo from 12 weeks gestation. Fasting serum folate and plasma homocysteine concentrations were measured at 20 and 28 weeks (*table 1*).

Low values of serum folate and vitamin B12 were demonstrated. Apparently the woman was taking placebo medication which was stopped and oral folic acid 5 mg/day and parenteral vitamin B12 was started.

Within three weeks, serum lactate dehydrogenase, the parameter which was used to define haemolysis, had normalised. The woman delivered a healthy male (3050 grams) at 39 weeks, without recurrence of pre-eclampsia. Follow-up investigation showed gastric parietal cell antibodies, so ongoing vitamin B12 therapy was maintained. Schilling's test was not performed. Haemoglobin electrophoresis was normal.

So we present rapid vitamin depletion during pregnancy resulting in haemolytic anaemia. Interestingly, this did not develop during her first pregnancy or while she was lactating. Possible explanations are that the well-grown foetus of the second pregnancy had a higher demand for vitamins than his elder growth-restricted sibling, that the pregnancy accelerated the onset of autoimmune gastritis and associated B12 deficiency, or that the time between

Table 1. *Laboratory findings before, during and after a second pregnancy complicated by haemolysis*

	Before	During						After
	4 months	10 weeks	20 weeks	28 weeks	33 weeks	35 weeks	37 weeks	39 weeks	9 months
Hb (7.5-10.0 mmol/l)	6.6	6.2	6.9	7.3	6.4	5.5	5.7	5.7	7.9
Ht (37-47%)	34	31	34	33	29	26	26	28	
MCV (80-100 fl)						99			
MCH (1700-2000 pmol/l)						2275			
MCHC (20-22.5 mmol/l)						23			
Thrombocytes (150-400 x 10^9/l)	339	398	241	153	150	130	129	354	
Serum ALAT (5-45 U/l)		15	9	17	18	28		11	
Serum ASAT (10-40 U/l)		24	18	28		52	22	30	
Serum LDH (150-400 U/l)				447	1009	1646	836	394	
Serum folate (>5.9 nmol/l)	9.5		7.8	3.3		3.9			
Serum vitamin B12 (156-672 pmol/l)	331					108			
Erythrocyte vitamin B6 (17-100 nmol/l)	33								
Plasma homocysteine fasting (6-15 µmol/l)	17.9		12	10.5					7.9
6 hrs post 100 mg/kg methionine loading (18-51 µmol/l)	52.6								

Hb = haemoglobin; Ht = haematocrit, MCV = mean corpuscular volume; MCH = mean corpuscular haemoglobin; MCHC = mean corpuscular haemoglobin concentration; ALAT = alanine aminotransferase; ASAT = aspatate aminotransferase; LDH = lactate dehydrogenase.

the two pregnancies was too short to recover from possible mild pre-existing deficiencies.

An average Western diet usually contains adequate vitamin B12 and folate above the recommended dietary allowance.[2,3]

More women, however, are becoming vegetarians, so more B12 deficiency can be expected in pregnant women.[4] On direct questioning, no recent changes in her diet were identified.

Thus, B12 and folate status should be investigated in cases of haemolytic anaemia in pregnant women who have not had a recent change in diet.

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