Comment

Clinical infections caused by marine vibrios were reviewed by Blake *et al*, who reported pre-existing hepatic disease in 18 of 24 patients presenting with septicæmia, abrupt onset of symptoms, and skin lesions; four of the 18 had haemachromatosis, and one thalassaemia major. Our patient showed no abnormality on tests of liver function, and ferritin concentrations (1689 µg/l) were within acceptable limits. The bioavailability of iron has been implicated in infections caused by *V. vulnificus*.⁵

When carrying out biochemical tests it is worth remembering that a mobile rod positive for oxidase and indole should be tested in medium containing 1% sodium chloride, particularly if no fermentation reactions are noted initially.

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- 4 Blake PA, Michael MPH, Merson H, Weaver RE, Hollis DH, Heublein PC. Disease caused by a marine vibrio. *N Engl J Med* 1979;300:1-5.
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Can patients with Refsum's disease safely eat green vegetables?

Refsum's disease (heredopathia atactica polyneuritisformis) is caused by an inability to metabolise phytanic acid, which accumulates in adipose tissue and plasma. The clinical features include retinitis pigmentosa, anosmia, and neuropathy. Lowering the plasma phytanic acid concentration by restricting phytanic acid in the diet or by plasma exchange leads to improvement in the neuropathy.¹ Phytanic acid is formed from free phytol but not from phytol bound to chlorophyll, which is poorly absorbed.² Hitherto, fruit and green vegetables have been excluded from the diet of patients with Refsum's disease because of lack of data on their free phytol content. This has reduced the diet's palatability and nutritional value and necessitated the use of vitamin supplements. To broaden the scope of the diet we introduced fruit and vegetables with high phytol but low free phytol content into the diet of a patient with Refsum's disease and assessed the effect of this new diet.

Phytanic acid and free phytol content of food*

	Date started	Examples of food	Phytanic acid (µmol/kg)	Free phytol (µmol/kg)
Cooked vegetables	May 1984	Spinach	1.3	6.4
		Leeks	Trace	0
		Asparagus	0	2.5
Pulses	June 1984	Peas	0	0
		Pease pudding	3.2	0
		Lentils	19.2	0
		Broad beans	9.6	6.7
		Mixed salad (lettuce, mustard, cress, parsley, cucumber, green pepper, spring onion, white and red cabbage, bean shoots, celery, watercress)	14.1	6.4
Raw vegetables	July 1984			
Fresh fruit	September 1984	Apples	0	0
		Grapes	9.6	0
		Pears	0	0
Dried fruit	November 1984	Sultanas	12.8	0
		Raisins	12.8	0
		Currants	0	0
		Prunes	35.2	0
			1311.8	0
Nuts	December 1984	Roast peanuts	0	0
Tomatoes	February 1985	Purée	0	0
		Tinned Ketchup	Trace	0
			3.2	0

*Samples of food were analysed in duplicate. Results are given for undried food.

Case report

The patient was a 40 year old man.¹ At diagnosis his plasma phytanic acid concentration had been 1.51 mmol/l. From 1977 his diet had been low in phytanic acid and phytol. From 1982 his plasma phytanic acid concentration had been at or below 0.3 mmol/l, and he had continued to improve clinically.

The amount of phytanic acid in extractable lipids in food was estimated.¹ To estimate free phytol lipids were extracted from dried food with chloroform and methanol (2:1 v/v 25 ml/g dried food). An aliquot of the extract with an internal standard (methyl pentadecanoate, 0.1 ml, 2.86 mmol/l) was evaporated to dryness and redissolved in 0.2 ml *n*-hexane. The sample was analysed by gas-liquid chromatography using a 12 m BP10 fused silica capillary column, internal diameter 0.22 mm; hydrogen was used as carrier gas at an inlet pressure of 41 kPa and a split ratio of 40:1, with an isothermal oven temperature of 190°C. The logarithm of retention time of phytol relative to methyl pentadecanoate is 0.5272; the phytol content of foods was calculated by reference to this external standard. Adding an aliquot of free phytol to foods free of phytol showed that recovery of phytol with this method was at least 85%, with a minimum detection concentration of 2.517 µmol phytol/kg food (dry weight).

Between April 1984 and March 1985 the patient successively added seven groups of foods containing negligible amounts of free phytol to his diet so that by February 1985 he was eating food from all groups (table). His total daily intake of phytanic acid was less than 10 mg a day except when he ate peanuts, when he took up to 30 mg phytanic acid a day. Peanuts were subsequently excluded from the diet.

The patient's clinical condition remained unchanged during and after the study. Serial plasma concentrations of phytanic acid remained below 0.15 mmol/l, concentrations in adipose tissue fell from 43.27 mmol/kg tissue in May 1983 to 12.82 mmol/kg tissue in January 1985, and body weight remained in the range 77-80 kg. The patient preferred the improved diet, which was nutritionally adequate without supplements.

Comment

Plasma and adipose tissue concentrations of phytanic acid did not rise when phytol bound to chlorophyll was added to the diet of this patient with Refsum's disease. Previous diets for such patients, though effective, have been restrictive; the new diet should improve palatability, compliance of patients, and nutritional value. Thus provided that their free phytol content is low, foods containing phytol bound to chlorophyll can be introduced into the diet of patients with Refsum's disease.

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