

decreased. The effect of etretinate on her amyloidosis possibly depends therefore on the anti-inflammatory activities of retinoids recently reviewed by Orfanos and Bauer³; inhibition of the mobility of granulocytes and their migration into the epidermis, reduction of DNA synthesis of human lymphocytes, and stimulation of monocytes and macrophages—inflammatory cells considered to be essential in the pathophysiology of psoriasis.

1 Dicken CH. Retinoids: a review. *J Am Acad Dermatol* 1984;4:541-51.

2 Fuchs E, Green H. Regulation of terminal differentiation of cultured human keratinocytes by vitamin A. *Cell* 1981;25:617-25.

3 Orfanos CE, Bauer R. Evidence for anti-inflammatory activities of oral synthetic retinoids: experimental findings and clinical experience. *Br J Dermatol* 1983;109:55-60.

4 Plewig G, Wagner A. Anti-inflammatory effects of 13-cis-retinoid acid. *Arch Dermatol Res* 1981;270:89-94.

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Departments of Internal Medicine and Dermatology, University Hospital, S-751 85 Uppsala, Sweden

EVA AF EKENSTAM, MD, registrar in rheumatology

GERD MICHAËLSSON, MD, PHD, associate professor of dermatology

ROGER HÄLLGREN, MD, PHD, associate professor of internal medicine

Correspondence to: Dr Eva af Ekenstam, Section of Rheumatology, Department of Internal Medicine, University Hospital, S-751 85 Uppsala, Sweden.

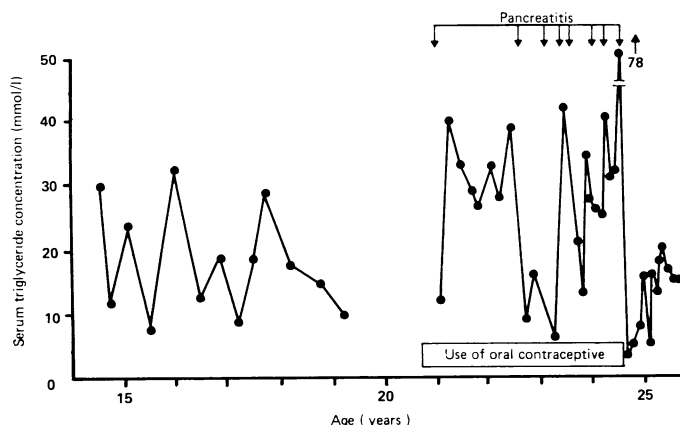
Pancreatitis induced by oestrogen in a patient with type I hyperlipoproteinaemia

Type I hyperlipoproteinaemia (familial hyperchylomicronaemia) is a disorder in the catabolism of triglyceride rich particles caused by a genetic deficiency of lipoprotein lipase or its cofactor apolipoprotein CII.¹ Pancreatitis is a frequent and dangerous complication. We report on a patient with this disorder who suffered from pancreatitis during the use of an oral contraceptive.

Case report

The 25 year old patient had undergone laparotomy because of a chyloperitoneum at the age of 6 weeks. At that time milky serum, hepatosplenomegaly, and a chylothorax were found. A fat restricted diet was prescribed, and she grew up normally with no complaints. Serum cholesterol concentrations varied between 5 and 8 mmol/l (193-309 mg/dl) and serum triglyceride concentrations between 10 and 30 mmol/l (885-2655 mg/dl) (figure).

Between the ages of 22 and 25 she was admitted to the hospital eight times because of pancreatitis, indicated by raised amylase activity in plasma and urine. Serum triglyceride concentrations up to 30-40 mmol/l (2655-3540 mg/dl) were found, but these may be underestimations because on several occasions concentrations were measured only on the second or third day after admission. During



Serum triglyceride concentrations and attacks of pancreatitis in patient with type I hyperlipoproteinaemia.

Conversion: SI to traditional units—Serum triglyceride: 1 mmol/l ≈ 88.5 mg/dl.

the last attack of pancreatitis abdominal abscesses were found during a laparotomy.

After recovery the patient was referred to our clinic. She said that she followed a low fat diet and denied using ethanol. Until three months previously, however, she appeared to have been using an oral contraceptive containing 150 µg levonorgestrel and 30 µg ethinylloestradiol, from the age of 21 to 25 years. There was no xanthomas. Liver and spleen were not palpable and blood glucose concentrations were normal. Fasting serum cholesterol concentration was 2.56 mmol/l (99 mg/dl) and triglyceride concentration 4.16 mmol/l (368 mg/dl). High density lipoprotein cholesterol concentration was 0.42 mmol/l (16 mg/dl). Lipoprotein lipase activity was selectively measured in postheparin plasma (50 U/kg) after inactivation of hepatic lipase by specific antiserum.² Lipoprotein lipase activity and hepatic lipase activity were 0.3 and 6.6 µmol of free fatty acids/ml/h, respectively (mean (range) values for 15 normal women 8.9 (5.8-14.1) and 16.2 (6.5-27.4) µmol/ml/h, respectively). On isoelectric focusing of very low density lipoproteins a normal amount of apolipoprotein CII was found.² Because the attacks of pancreatitis seemed to be related to the use of the oral contraceptive, its use was discouraged. During one year of follow up serum triglyceride concentrations dropped, and the patient remained free of abdominal complaints (figure).

Comment

Pancreatitis is a common manifestation in familial hyperchylomicronaemia and may be induced by insufficient adherence to a low fat diet or by pregnancy leading to very high serum triglyceride concentrations.¹ The very high concentrations of plasma triglycerides during pregnancy are supposed to result from an increased hepatic secretion of very low density lipoprotein under the influence of oestrogen in addition to the impaired clearance of these particles from the blood.¹ Oral contraceptives containing oestrogen may have the same effect. In the normal population oral contraceptives also increase serum triglyceride concentration.³ In other forms of familial hypertriglyceridaemia pronounced hyperlipidaemia and pancreatitis have also been associated with use of oral contraceptives^{4,5}; however, such an association has not yet been reported in patients with type I hyperlipoproteinaemia.

Our patient had no problems when following a low fat diet, but when she started to use an oral contraceptive her hyperlipidaemia was aggravated and bouts of severe pancreatitis occurred. These drugs should therefore not be prescribed in patients with familial hyperchylomicronaemia and distinct hypertriglyceridaemia.

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- 1 Havel RJ, Goldstein JL, Brown MS. Lipoproteins and lipid transport. In: Bondy PK, Rosenberg LE, eds. *Metabolic control and disease*. Philadelphia: Saunders, 1980:393-494.
- 2 Stalenhoef AF, Casparie AF, Demacker PN, Stouten JT, Lutterman JA, van 't Laar A. Combined deficiency of apolipoprotein C-II and lipoprotein lipase in familial hyperchylomicronemia. *Metabolism* 1981;30:919-26.
- 3 Wallace RB, Hoover J, Barrett-Connor E, et al. Altered plasma lipid and lipoprotein levels associated with contraceptive and oestrogenic use. Report from the Medications Working Group of the Lipid Research Clinics Program. *Lancet* 1979;ii:111-5.
- 4 Glueck CJ, Scheel D, Fishback J, Steiner P. Estrogen induced pancreatitis in patients with previous covert type V hyperlipoproteinemia. *Metabolism* 1972;21:657-66.
- 5 Davidoff F, Tishler S, Rosoff C. Marked hyperlipidemia and pancreatitis associated with contraceptive therapy. *N Engl J Med* 1973;289:552-5.

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Division of General Internal Medicine, Department of Medicine, University of Nijmegen, PO Box 9101, 6500 HB, Nijmegen, Netherlands

P M J STUYT, MD, consultant internist

P N M DEMACKER, PHD, biochemist

A F H STALENHOF, MD, consultant internist

Correspondence to: Dr Stuyt.

Correction

Increased risk of sudden infant death syndrome in older infants at weekends

We regret that there was an error in the table in the short report by Murphy, Campbell, and Jones (9 August, p 364). In the right hand column (95% confidence interval) the entry for Saturday should read (1.02-1.16).