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a major disadvantage with the intravenous or intramuscular route. However, the need for careful observation of patients who receive sc morphine remains. Extremes of age, hypovolaemia, dehydration and the presence of hepatic or renal parenchymal disease predispose to opiate overdosing. Goudie et al (6) reported significant respiratory depression in 2 out of 24 patients who received sc morphine infusions. Calculating the individual requirement by titration during the initial loading phase, rather than by depending on a mg/kg formula will minimise such risks.

It is unlikely that simple microinfusion sets could be used to deliver sc infusions. The need for frequent adjustments of the drip regulator makes it unsuitable for use either in the wards or intensive care units. Hence the need for sophisticated infusion pumps would be a major limiting factor in the widespread use of the infusion technique in most countries.

Acknowledgments

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Prevalence of lipid abnormalities in Sri Lankan patients with non-insulin dependent diabetes mellitus

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Abstract

Objective To determine the prevalence of hyperlipidaemia in Sri Lankan patients with non-insulin dependent diabetes mellitus (NIDDM) and a normal control population.

Design A cross-sectional study.

Setting Patients with NIDDM randomly selected from a diabetic clinic register and non-diabetic controls randomly selected from an electoral register.

References

1. Utting JE, Smith JM. Postoperative analgesia. *Anaesthesia* 1979; 34: 320-322.
2. Editorial. Tight-fisted analgesia. *Lancet* 1976; 1: 1338
3. Editorial. The other end of the knife. *British Medical Journal* 1976; 1: 1491-1492.
4. Mitchell RWD, Smith G. The control of acute postoperative pain. *British Journal of Anaesthesia* 1989; 63: 147-158.
5. Morgan M. The rational use of intrathecal and extradural opioids. *British Journal of Anaesthesia* 1983; 63: 165-188.
6. Kehlet H. Surgical stress: The role of pain and analgesia. *British Journal of Anaesthesia* 1989; 63: 189-195.
7. Rutter PC, Murphey F, Dudley HAF. Morphine: controlled trial of different methods of administration for postoperative pain relief. *British Medical Journal* 1980; 1: 12-13.
8. Goudie TA, Grant IS. Subcutaneous morphine infusion for postoperative pain. *Anaesthesia* 1985; 40: 305-306.
9. Semple TJ, Macintyre PE. Subcutaneous morphine. *Anaesthesia* 1991; 46: 75.
10. Jordan T, Griffiths DM. Taking the sting out of postoperative pain in children. *Anaesthesia* 1990; 45: 413.
11. Waldmann CS, Eason JR, Rambohul E, Hanson GC. Serum morphine levels. *Anaesthesia* 1984; 39: 768-771.
12. Lavies NG, Wandless JG. Subcutaneous morphine in children: Taking the sting out of postoperative analgesia. *Anaesthesia* 1989; 44: 1000-1001.
13. Colton T. Statistics in medicine. Little Brown and Company Ltd., 163-167.

Patients 498 patients with NIDDM (197 females, mean age 53.5, SD 6.2 years) and 253 non-diabetic controls (101 females, mean age 53, SD 5.5 years) matched for age and sex.

Methods Diabetes and impaired glucose tolerance (IGT) were excluded in the control group by a 75g oral glucose tolerance test. Total cholesterol, high density cholesterol and triglycerides were determined in fasting blood samples.

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Results The prevalence of lipid abnormalities was significantly higher in diabetic patients than in controls. The prevalence of hypercholesterolaemia was 21% vs 14% and that of hypertriglyceridaemia 16% vs 8.3%. Mean fasting blood glucose was higher (9.7 ± 2.7) in hyperlipidaemic patients than in normolipidaemic diabetic patients (7.5 ± 2.1)

Conclusions Hyperlipidaemias are common in Sri Lankan patients with NIDDM and screening for them should be an essential component of management of patients with diabetes mellitus.

Introduction

Dyslipidaemias are common in patients with NIDDM (1,2,3), and are regarded as predisposing to accelerated atherosclerosis and increased mortality and morbidity from cardiovascular disease (4,5,6). The British Hyperlipidaemia Society (7) and the European Atherosclerosis Society (8) have recommended that individuals with total plasma cholesterol higher than 6.5 mmol/l who are at risk from premature cardiovascular disease should have active management to reduce cholesterol. The European Association for the Study of Diabetes (EASD) recommended that all patients with NIDDM should be screened for hyperlipidaemia (9). This is not routine practice in Sri Lanka. A study of lipid abnormalities in local diabetic patients is required to determine the relevance of these recommendations to Sri Lanka. This paper reports on such a study.

Materials and methods

Five hundred and fifty patients with NIDDM attending the Sri Jayawardenepura General Hospital were randomly selected from a clinic register of 2304 patients. Complete data were available for 498 (197 females). The 253 non-diabetic controls (101 females), matched for age and sex, were randomly selected from a data bank of 532 persons who were in turn randomly selected from a register of 2974 individuals previously screened as part of a community study to determine the prevalence of diabetes mellitus. Diabetes was diagnosed according to WHO criteria (10).

All patients selected were those treated with diet modification alone or oral hypoglycaemic agents or both, and onset of diabetes was after 30 years of age. All patients with documented ketoacidosis and severe intercurrent illness requiring insulin therapy were excluded. A questionnaire was completed for each diabetic patient in which name, age, sex, present age and date of diagnosis of diabetes were recorded. Smoking status was recorded as smoker, ex-smoker or non-smoker.

The body mass index (BMI) was calculated as BMI = weight in kg / height in metres². Obesity was defined as BMI > 27 for men and BMI > 25 for women. Venepuncture was performed after a 14-hour fast in both patients and controls. Blood glucose was assessed using the glucose oxidase method. Serum was separated from blood samples within 2 hours of collection. High density lipoprotein (HDL) fraction was isolated for cholesterol analysis by the phosphotungstic acid and magnesium chloride method. Serum HDL cholesterol and total cholesterol were estimated by the CHOD-PAP method, and total triglyceride by GPO-PAP method in an autoanalyzer (Cobas Mira) using commercially available test kits (Boehringer Mannheim GmbH Germany). Hypercholesterolaemia was defined as total cholesterol higher than 6.5 mmol/l and hypertriglyceridaemia as triglycerides higher than 2.25 mmol/l (8). Low HDL was defined as HDL cholesterol less than 0.9 mmol/l (11).

Diabetic patients with albuminuria and diabetic retinopathy with no evidence of urinary tract infection in urine cultures were classified as having diabetic nephropathy.

Statistical analysis was by the Mann Whitney U test and Chi squared test.

Results

Hypercholesterolaemia and hypertriglyceridaemia were more common in NIDDM patients than in controls (Table 1). 16.5% of diabetic patients and 13% of controls had low HDL cholesterol. The patients were grouped as normolipidaemia, combined hyperlipidaemia, hypercholesterolaemia or hypertriglyceridaemia. Those with normal lipids were younger at the time of the study and had a lower BMI ($p < 0.01$) than patients with lipid abnormalities. Mean fasting blood glucose was higher (9.7 ± 2.7 mmol/l) in patients with hyperlipidaemias than in normolipidaemic patients (7.5 ± 2.1 mmol/l, $p < 0.5$).

56 patients had diabetic nephropathy. Mean cholesterol and triglycerides were higher in these patients than in patients without nephropathy. The groups were not matched according to smoking status. The difference in prevalence of smoking between the NIDDM (33%) and control groups (34%) was not statistically significant.

Discussion

The results of this study indicate that lipid abnormalities are more common in patients with NIDDM than in age and sex matched non-diabetic controls. In the control group IGT and diabetes mellitus have been excluded by 75g glucose tolerance tests and so the

with high dose dexamethasone suppression excluded a pituitary adenoma and suggested autonomous adrenal hyperplasia as the diagnosis.

Computerised tomography (CT) and ultrasound scan failed to show any pituitary or adrenal adenoma. Lentigenes which were seen in this lady are associated with bilateral adrenocortical hyperplasia of the idiopathic non-ACTH dependent variety. This condition is a well documented discrete entity (1,3,4).

This patient was then seen by surgical units in Sri Jayawardenepura and Colombo General Hospitals who conducted their own investigations over two years to "confirm the diagnosis and evaluate the patient". During these two years her hypertension became resistant to drugs and the glycaemic control was poor. She also had osteopenia.

In our view the best policy of management is to exclude a pituitary adenoma by an MRI scan followed by bilateral adrenalectomy. As these facilities were not available in Sri Lanka we referred this patient to a centre in India. The MRI scan with gadolinium contrast was normal and she underwent bilateral adrenalectomy. Histology confirmed bilateral micronodular dysplasia. Six months later she was completely well

and was on adrenal replacement therapy only. Her serum cortisol was in the normal range.

However, a normal MRI scan cannot rule out the possibility of an occult pituitary microadenoma in 50% of patients (1). Hence constant surveillance to detect Nelson's syndrome is essential.

Three other patients with the same clinical presentation who cannot afford treatment in India are awaiting treatment for over one year. The lack of specialised facilities often forces surgeons to accept a diagnosis based on the physician's clinical acumen rather than on objective criteria. This may explain their reluctance to undertake radical surgery such as bilateral adrenalectomy.

References

1. Orth DN, Kovacs WJ, Debold R. Adrenal cortex. In: Wilson JD, Foster W, eds. Williams textbook of endocrinology. Philadelphia: W.B. Saunders Company. 1992: 536-590.
2. Amarasekera N. Isolated adrenocorticotrophic hormone deficiency. *Ceylon Medical Journal* 1992; 37: 133-134.
3. Orth DN. The old and the new in Cushing's syndrome. *New England Journal of Medicine* 1984; 310: 649-651.
4. Orth DN. Differential diagnosis of Cushing's syndrome. *New England Journal of Medicine* 1991; 325: 957-959.

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To the Editors:

Symptomatic hypoglycaemia in elderly diabetic patients

Sulphonylurea induced hypoglycaemia (SIH) is an iatrogenic complication associated with significant morbidity and mortality. The incidence of SIH is reported to be 19 per 1000 patients per year (1), and the elderly diabetic appears to be particularly vulnerable (2). Morbidity and mortality in this age group may be increased by the inability of patients and relatives to recognise warning symptoms. I studied 144 consecutive patients (61 men, mean age 67.1, SD 7.7 years, mean duration of diabetes 9.1, SD 7.5 years) aged over 61 attending an outpatient diabetic clinic in a teaching hospital over a four week period.

All patients (and accompanying persons if any) were asked whether the patient had experienced any key symptoms of hypoglycaemia (3) within the previous 3 months, and if so, whether symptoms were severe enough to require assistance of another person or seek treatment from a doctor. Symptoms were attributed to hypoglycaemia if they responded to oral

or intravenous glucose therapy alone. Patients were also asked whether they had received any advice on identification, prevention or treatment of "low blood sugar". All patients were asked what they would do if they suspected that they had low blood sugar.

At least one episode of symptoms suggestive of SIH requiring the assistance of another person was experienced by 82 patients within the previous 3 months. Of these 22 sought medical advice and 7 required hospital admission. 44 (53.6%) of the patients experiencing SIH were being treated with chlorpropamide, 26 (18%) with glibenclamide and 12 (8.3%) with tolbutamide. Eight patients receiving glibenclamide who experienced SIH were prescribed a dose of 10 mg bd, which is in excess of the maximum daily dose of 15 mg. The prevalence of SIH among those taking different sulphonylurea was chlorpropamide 68.7%, glibenclamide 72.2% and tolbutamide 27%.