Discussion

The six minute corridor walk⁸ is an accurate, routine standard test of effort tolerance in patients with respiratory disease. Use of the test and the design of this study appeared to have been satisfactory in that variations in walking distances were not prejudiced by walking order, experience, or training effects. Patients were selected carefully so as to exclude only those who might be considered as suffering from chronic asthma. The population studied was therefore representative of patients whom we commonly encounter with chronic bronchitis due to cigarette smoking.

As with some single dose studies of theophylline in chronic bronchitis² the incremental dosages used here produced no useful improvement in spirometric values. Neither effort tolerance nor concomitant dyspnoea appeared to be influenced by the drug, even when unacceptably high dosages were used. The results were similar for those subjects who showed small improvements in PEFR and for those with or without accompanying emphysema.

Leitch *et al* reported a 6% improvement in 12 minute distances with oral slow aminophylline.⁶ Their results, however, were not confirmed or reproduced by Eaton *et al* in patients with chronic airflow obstruction, who did show significant improvement in spirometric function with oral theophylline.⁷ Interestingly, my results show that an improvement of 7% can be obtained with placebo alone.

Nineteen of the 20 subjects in this study with chronic bronchitis had previously been prescribed long term oral

theophylline, and the use of the drug in this condition is common practice. The role of theophylline in chronic bronchitis appears to be less controversial than before, but the routine, indiscriminate use of the drug in these patients seems difficult to justify.

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How soon after myocardial infarction should plasma lipid values be assessed?

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Abstract

Because acute myocardial infarction may affect plasma lipid concentrations it is commonly recommended that assessment of these concentrations should be delayed until about three months after the acute event. A study was therefore conducted of fasting plasma lipid concentrations in 58 patients with acute myocardial infarction. Measurements were made during their stay in hospital (days 1, 2, and 9) and three months later.

Triglyceride concentrations remained unchanged throughout. Values of total cholesterol, low density lipoprotein, and high density lipoprotein all fell sig-

nificantly between the first two days and day 9. Total cholesterol and low density lipoprotein also showed significant falls between days 1 and 2. Nevertheless, fasting plasma lipid concentrations showed no significant difference at any time during the first 48 hours from values measured three months later. After the infarction 26 patients changed to eating less fat or less energy, or both. More patients had hypercholesterolaemia in the first 48 hours than at three months.

These results suggest that lipid state may be assessed as accurately, and possibly more accurately, during the first 48 hours after acute myocardial infarction than at three months.

Introduction

Current clinical convention dictates that because acute myocardial infarction may affect plasma lipid concentrations lipid measurement for the detection of hyperlipidaemia should be deferred until two to three months after the acute event.¹⁻⁴ We have re-examined the effect of acute myocardial infarction on plasma lipid values to see if these can be meaningfully assessed during the hospital admission.

Patients and methods

We studied 58 patients who survived for three months after myocardial infarction. All had been admitted to the coronary care

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unit and were diagnosed as having had an acute myocardial infarction on the basis of history, unequivocal changes in the electrocardiogram, and a diagnostic rise in cardiac enzyme activities. Thirty eight of the patients were men and 20 women, and their mean age was 57 (range 26-73).

Fasting (overnight from 10 pm) blood samples were taken as soon as possible after admission (day 1; average 23 hours after estimated onset of infarction), 24 hours later (day 2), shortly before discharge (day 9), and, finally, about three months later (average 13½ weeks).

Mean fasting plasma lipid and glucose concentrations after myocardial infarction in 58 patients. Bars are SEM. Compared with day 1: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Conversion: SI to traditional units—Glucose: 1 mmol/l $\approx$ 18 mg/100 ml. Triglyceride: 1 mmol/l $\approx$ 88.4 mg/100 ml. High density lipoprotein, low density lipoprotein, and cholesterol: 1 mmol/l $\approx$ 38.6 mg/100 ml.

Concentrations of plasma total cholesterol and triglycerides (Boehringer enzymatic methods), low density lipoprotein and high density lipoprotein (heparin manganese chloride precipitation methods), and glucose (glucose oxidase) were measured in each sample. The results were not examined until after the end of the study, so that patient management—in particular, diet—was not influenced by them. Changes in dietary intake and smoking habits were noted at three months. Significance was assessed by the paired t test.

Results

The figure gives the results of analysis for the group as a whole. Triglyceride concentrations showed no significant change during the

study. Total cholesterol ($p < 0.001$), low density lipoprotein ($p < 0.001$), high density lipoprotein ($p < 0.01$), and glucose ($p < 0.001$) all showed significant falls between days 1 and 9. Nevertheless, although there was a significant fall in total cholesterol by day 2, there was no significant difference in value of total cholesterol, low density lipoprotein, or high density lipoprotein between either day 1 or 2 and three months. Of the 19 patients who had raised total cholesterol concentrations (over 6.0 mmol/l (232 mg/100 ml)) three months after myocardial infarction, 13 (68%) had had raised values on day 1 or 2. Conversely, of the 27 patients whose total cholesterol concentration exceeded 6.0 mmol/l shortly after the infarct (day 1 or 2), only 13 (48%) had high total cholesterol values at three months. The only patient whose total cholesterol concentration was over 8.0 mmol/l (309 mg/100 ml) at three months also had similarly high values on days 1 and 2. Nevertheless, none of the other four patients (including the only patient in the study previously known to have type IIb hyperlipidaemia) with total cholesterol values over 8.0 mmol/l on day 1 or 2 had values this high at three months. During the three months these patients had lost weight and were eating less fat. Furthermore, 26 of all 58 patients studied (45%) admitted to eating less energy or less fat, or both, at three months.

The changes in glucose values were compatible with initial stress hyperglycaemia, which rapidly recovered. At the time of the infarct 27 (47%) of the patients were smokers; at three months 16 (60%) had stopped smoking and six (22%) were smoking less.

Discussion

Our study confirms reports that concentrations of plasma total cholesterol⁵⁻¹³ and low density lipoprotein^{12,13} fall significantly after acute myocardial infarction, whereas triglyceride values remain unchanged.^{8,11} We also found a significant fall in high density lipoprotein. Other studies reporting that values of total cholesterol¹⁴ and high density lipoprotein¹²⁻¹⁴ do not change after acute myocardial infarction were carried out on smaller numbers of patients; they did, however, tend to show trends in keeping with our results. Those smaller studies also reported a significant rise in triglyceride values, which we were not able to confirm.

Lipid state is usually not assessed while the patient is in hospital immediately after myocardial infarction because of the effect of the infarction on plasma lipid concentrations, which we have confirmed. We, however, could find no significant difference between plasma lipid values measured during the first 48 hours after myocardial infarction and those measured three months later. This confirms the work of Fyfe *et al.*, who concluded that hyperlipidaemic states could be identified during the 24 hours after myocardial infarction.¹¹ Twenty six of our patients (45%) changed to eating less fat or energy, or both, as a result of the heart attack, so it may be that the sample taken in the first 48 hours gave a more accurate reflection of previous lipid state than the one at three months. High total cholesterol values at three months were more likely to be detected during the first 48 hours than were high total cholesterol values in the first 48 hours to be followed by high values at three months. Thus underlying hypercholesterolaemia may be detected more easily in the first 48 hours than at three months.

The association between the incidence of coronary artery disease and total plasma cholesterol concentration is well established.^{15,16} The low density lipoprotein subfraction is mainly responsible for this relation, while values of high density lipoprotein are inversely related.^{17,18} In view of this close link between cholesterol concentrations and coronary artery disease and the accumulating evidence that treating hypercholesterolaemia in middle aged men may reduce mortality and morbidity from ischaemic heart disease,^{19,20} plasma lipid assessment is very important in patients who have had a myocardial infarction.^{21,22} It is frequently overlooked at the follow up attendances at busy hospital outpatient departments or general practitioners' surgeries in the months after discharge from hospital. In order to identify patients requiring follow up plasma lipid values may be routinely examined during the first two days after a myocardial infarction.

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Fast neutron treatment as an alternative to radical surgery for malignant tumours of the facial area

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Abstract

Thirty one patients with very advanced tumours of the maxillary sinus were treated with fast neutrons. Tumour regressed completely in 29 (94%) and subsequently recurred in four (14%). No surgical excision of bone, skin, or nerve was required, and an artificial eye was well tolerated in cases where the eye received the tumour dose and had to be removed. Complications occurred in 10 patients, two of whom had already received radical x ray treatment. The overall duration of neutron treatment was four weeks, and admission to hospital was usually unnecessary. These results compared well with those obtained with surgery. Surgery with curative intent for even moderately advanced tumours of the facial region, particularly the paranasal sinuses, results in deformity, which is often severe and always irreversible. Even so, the cure rate is only about 35%.

The high rates of tumour control and the avoidance of severe cosmetic and functional defects after fast neutron treatment make it an alternative to radical surgery in the management of malignant tumours of the facial area.

Introduction

Coverage has recently been given in the national press and on television to a group of people whose aim is to give support to patients who have undergone radical surgery for the removal of tumours of the face. This has drawn attention to the plight of these patients, relatively few in number and rarely seen in public. Their disabilities result from removal of the entire bony orbit, maxilla, or facial nerve and from construction of forehead or chest skin flaps, leaving cosmetic results that often cause them severely to restrict their social lives.^{1,2} Skillfully designed prostheses, understanding relatives, and support groups all help to lessen the effects of this morbidity. Morbidity is, however, unalterable for the rest of their lives unless the tumour recurs, when even further surgery, phototherapy, or laser beam surgery may be undertaken.

Tumours of the paranasal sinuses are often advanced when the patients are first seen and the bone is often affected. Some are "radioresistant" because of hypoxia or some other biological property and they also have a great propensity to spread along nerves or tissue planes.³ These factors make their control by γ and x rays difficult because the high doses required to sterilise the tumour are beyond the tolerance of the adjacent normal tissues. Radiation damage to bone and nervous tissue often appears in addition to recurrence of tumour. Thus the management of these tumours usually consists of a combination of surgery and radiation.²

Fast neutrons have different biological effects from x rays, and these differences result in therapeutic advantages in treating locally advanced or radioresistant tumour in certain sites.⁴ Neutrons are more effective against hypoxic malignant cells, and the damage they inflict is usually lethal rather than repairable as it often is after x rays. Furthermore, neutrons are absorbed by tissues in proportion to the concentration of hydrogen atoms. Consequently, soft tissues, which include tumours, absorb relatively more neutron energy and suffer greater damage than does bone. As bone is a dose limiting

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