

since coffee is not widely regarded to be a risk factor for hypertension. (There is the current interest in the effect of coffee on blood lipids,¹³ as well as hypotheses relating lipid metabolism to blood pressure,¹⁴ but it seems premature to attempt a reconciliation of these various themes.)

In conclusion, the main evidence regarding lead and blood pressure comes from two large cross sectional surveys: the second United States National Health and Nutrition Examination Survey and the British Regional Heart Study. Their conflicting findings make it impossible to make a definitive statement about the effect of environmental lead on hypertension. Further analysis of those studies may produce some rationalisation of these puzzling differences in research findings. But whatever the outcome, the issue of blood lead and hypertension is back and may remain prominent for some time.

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Crohn's disease in the elderly

"Your old men shall dream dreams and your young men shall see visions" said the prophet Joel, recognising that age changes us and modifies our response to important events.¹ In a medical context age may affect the incidence and the type of disease and its course, morbidity, and mortality. As the elderly population increases and the incidence of Crohn's disease rises the pattern of the disease in old people warrants examination. The few publications on the topic make a recent study from the gastrointestinal unit at Birmingham General Hospital of particular interest.² Previous studies have tended to be selective and restricted either to patients treated surgically or to those with a particular distribution of disease.^{3,4}

Crohn's disease in the elderly is rare. The Birmingham group had identified only 47 patients over the past 40 years who were aged over 60 at the time of diagnosis; they accounted for 8% of the total of over 600 patients, a proportion similar to that found by Goligher in his 500 patients.⁵ Epidemiological surveys based on defined populations rather than clinical series show that the peak incidence

occurs in the third decade, after which there is a sharp fall which then tails off more gradually after 40 years of age to smaller figures in the elderly.^{6,9} Some series have reported a second peak in the eighth decade, but with small numbers the finding may be spurious.⁹

Whether the extent and distribution of disease are different in the elderly has been disputed. In the Birmingham series distal ileal disease with or without spread to the right colon was the most common form, accounting for half of the cases; this is true for all age groups. Distal colonic disease, however, was more common than in younger patients and accounted for 40% compared with only 6% in younger patients. Extensive colonic or small bowel disease was uncommon. This relatively high proportion of colonic disease has been recognised in epidemiological surveys,^{7,9} and in Kyle's series from north east Scotland was most prominent in elderly women.⁶

The course of the disease was found to depend largely on the site of the lesion. Most of those with distal ileal disease needed laparotomy for obstruction, peritonitis, or to exclude carcinoma, but thereafter the prognosis was good. Fourteen of 22 patients with this disease distribution remained well. By contrast, patients with colonic disease rarely required surgery and were managed medically; there were only five resections in this group, and 14 of these 22 patients were also fit and well. This compares with the recently reported experience from St Mark's Hospital, where patients with colonic Crohn's disease had an accumulated probability of having bowel surgery of nearly 40% at 10 years.¹⁰ One further difference was that recurrence after the initial resection—a feature of the disease in general and particularly in young patients—occurred rarely in the Birmingham series and none of the patients required a second operation.

The overall standardised mortality ratio in Crohn's disease is usually quoted as twice the expected value for the general population.^{8,11-13} The risk of death is, however, much greater for patients who develop the disease early in life, and in one series those diagnosed in the second decade had a mortality ratio 11 times the expected value.¹¹ Elderly patients, however, have a mortality rate the same or less than the average for all patients with Crohn's disease. This may be due partly to the prominence of colonic disease, which carries a better prognosis.

Diagnosis of Crohn's disease in the elderly may be difficult because of the high prevalence of diverticular disease¹⁴ and carcinoma of the colon or caecum. Diverticular disease was present in more than half of the patients with colonic Crohn's disease, and lack of a confident radiological diagnosis of the caecal abnormality led to laparotomy in more than a quarter of the patients with ileocaecal disease.

Recognition of the generally favourable prognosis for Crohn's disease in elderly patients, particularly those with distal colonic disease, should be of practical value to gastroenterologists, geriatricians, and surgeons. Plainly this variant is a less aggressive form of the disease than that seen in younger patients.

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Regular Review

Calcium channel blocking agents and the heart

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The advent of calcium channel blocking agents was a substantial advance in cardiovascular therapeutics. In the four years since the last editorial in the *BMJ* on this subject the number of agents available has risen¹ and clinical experience with the existing drugs has increased; with that experience the range of therapeutic indications has widened.

What these drugs have in common is the ability to modify the transmembrane transport of calcium ions in different tissues, but the group is heterogeneous.² Calcium channel blocking agents differ from each other in their chemical structure, their mechanism of action at a cellular level, and their pharmacological effects. Far from being a disadvantage, this heterogeneity gives the group of drugs a distinct advantage over the β adrenergic blocking drugs.

Verapamil, nifedipine, and diltiazem are the three front line calcium channel blocking agents available, and these three agents have been the most extensively evaluated in clinical practice. Drugs such as prenylamine, perhexiline maleate, and lidoflazine also achieve their effects by actions on the calcium channel, but experience with these and other agents is more limited, and in some cases their use is also restricted by serious adverse effects.

The cellular mechanism of action of calcium channel blocking agents is complex.³ Calcium is vital in the genesis of the cardiac action potential, regulation of myocardial contractility, and contraction of smooth muscle. Calcium channel blocking agents interfere with the entry of calcium ions into the cell and so may reduce the formation and conduction of the cardiac impulse, reduce myocardial contractility, and produce vasodilatation. Nifedipine, a dihydropyridine derivative, produces coronary and systemic vasodilatation but in vivo has no effect on the cardiac conducting system. In contrast, both verapamil, a phenylalkylamine derivative, and diltiazem, a benzothiazepine derivative, produce less vasodilatation than nifedipine but impair sinoatrial and atrioventricular nodal conduction. In studies on dogs nifedipine has the most negatively inotropic effect, diltiazem having the least.⁴ In vivo, however, this negative inotropic effect of the calcium channel blocking

agents is offset by systemic vasodilatation and reflex sympathetic stimulation.

Coronary artery spasm

Dynamic coronary obstruction—coronary artery spasm—plays an important part in the pathogenesis of angina (and particularly angina at rest), not only in patients with normal coronary arteries but also in patients with fixed arterial stenoses due to coronary artery disease. Calcium channel blockade with nifedipine provides symptomatic relief in this condition, reducing the frequency of angina and the consumption of glyceryl trinitrate.⁵ Similar results have been obtained with verapamil and diltiazem. Long term treatment of coronary artery spasm with diltiazem also reduces cardiovascular "events" such as myocardial infarction, sudden death, and admission to hospital for prolonged pain.⁶ Nitrates and calcium channel blockade are equally effective in the condition, but patients seem to prefer treatment with calcium channel blockers.⁷

Stable angina pectoris

The main indication for the use of calcium channel blocking agents is chronic stable angina. Used alone, all the calcium channel blocking agents are effective in stable angina; they improve exercise tolerance and prolong both the time to the onset of angina and the time to the onset of ST segment depression during exercise testing.⁸⁻¹⁰ These beneficial effects appear to be sustained with long term treatment.¹¹ Although calcium channel blocking agents are said to achieve their beneficial effects in stable angina by increasing coronary blood flow, the evidence for this is not convincing,¹² and the more likely mechanism is a reduction in myocardial oxygen consumption. Indeed, most studies have shown that calcium channel blocking agents do reduce the rate pressure product and thus the myocardial oxygen consumption at submaximal exercise. They may also have an