were widely used for mild hypertension in the 1960s and '70s might have done more harm than good,[34 35] and this mistake may be potentially repeated in subjects with hypercholesterolaemia.

Doubts are even stronger in women: firstly, the effect of cholesterol lowering remains to be shown and, secondly, the incidence of coronary heart disease is already very low in middle aged women.

Further studies of the long term effects of individual intervention on both biological processes and quality of life are needed, especially for women and other low risk groups. In the mean time it is prudent to recall that a high serum cholesterol concentration is caused by unhealthy eating habits. Our analysis above indicates that individual interventions should be implemented with great caution. The widely recommended intervention limits[5 6 36] should be adjusted to include only a small proportion of the population. To what extent women should be included in such programmes is unclear. The use of drugs should be reserved for subjects with genetic hypercholesterolaemia or those who are otherwise at very high risk of arteriosclerotic disease.

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Microvascular vasodilatation in feet of newly diagnosed non-insulin dependent diabetic patients

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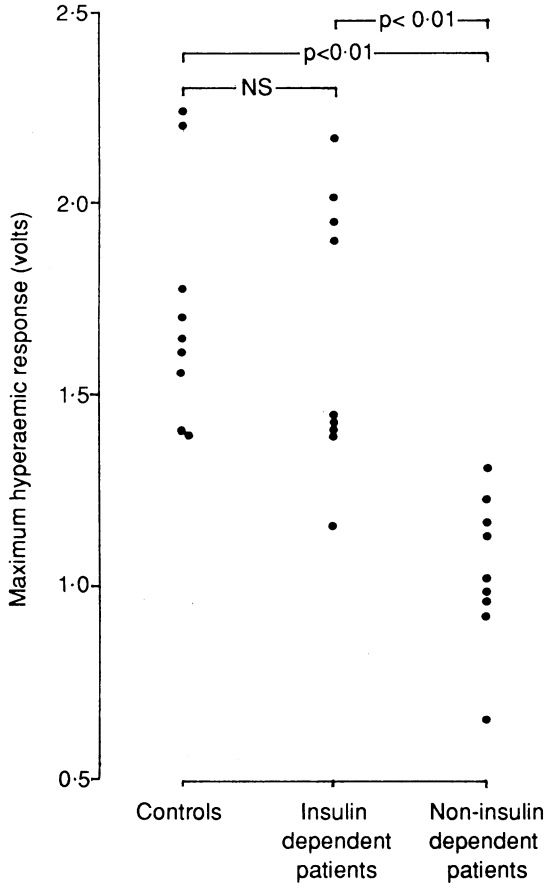
Patients with non-insulin dependent diabetes have an excess morbidity from foot ulceration, a difference largely attributed to a greater degree of large vessel disease,[1] with a contribution from neuropathy. Microvascular vasodilatation in response to injury is potentially an important part of healing yet the integrity of this response has not been examined at diagnosis in this high risk group.

The maximum vasodilatation (maximum hyperaemic response) to minor thermal injury can be reproducibly measured with laser Doppler fluximetry. An impairment of this response has been shown in type I (insulin dependent) diabetes.[2] We examined the integrity of this response in non-insulin dependent diabetic subjects without significant large vessel disease and compared the results with those from healthy controls and insulin dependent diabetic subjects.

Patients, methods, and results

Nine non-insulin dependent diabetic patients (assessed on clinical grounds) were recruited from successive referrals to our clinic (four women, five men, median age 42 (range 25-60) years. Controls matched for age and sex (hospital staff with no medical history, mean age 40 (25-60)) and insulin dependent diabetic patients matched for age and sex (mean age 42 (25-60), median duration of diabetes 19 (2-48) years) were recruited for comparison. Hypertensive subjects, those taking vasoactive drugs, and those with large vessel disease (indicated by a previous vascular event, ankle systolic index $<0{\cdot}1$, or absent foot pulses) were excluded.

Brachial systolic blood pressure was higher in the insulin dependent patients than in the non-insulin dependent patients or the controls (median 144 (112-160) mm Hg, 126 (105-170) mm Hg, and 120 (106-140) mm Hg, respectively; $p<0{\cdot}05$), although no difference in systolic pressure taken at the ankle or brachial diastolic pressure was found. Ambient blood glucose



Maximum blood flow (mean values for eight sites) in feet of healthy controls, and diabetic patients

concentration was higher in the insulin dependent subjects than in the non-insulin dependent subjects during the study (median 10·5 (4·7-18·3) mmol/l and 7·8 (4·0-12·1) mmol/l respectively; $p<0·01$) (BM test 1-44, Reflolux II meter, Boehringer Mannheim).

Studies were performed after 30 minutes' acclimatisation in a temperature controlled laboratory (22·0 (SD 0·4)°C). The skin was heated with a brass heater[2] to a probe temperature of 44°C, and flow was measured in eight sites with laser Doppler fluximetry (Periflux Pf2, Perimed, Sweden). The mean of the eight readings, the maximum hyperaemic response, was arbitrarily expressed in volts (V).

The maximum hyperaemic response was significantly impaired in the non-insulin dependent patients when compared with either the controls or insulin dependent patients (median 1·0 (0·65-1·32) V, 1·65 (1·39-2·24) V, and 1·45 (1·10-2·18) V, respectively; (figure). The 95% confidence interval (Friedman two way analysis of variance, $p=0·001$) for the difference between the maximum hyperaemic response in insulin dependent and non-insulin dependent patients was −0·901 to −0·283 V. No relation was seen between maximum hyperaemic response and ambient blood glucose concentration, systolic pressure taken at the ankle, or systolic, diastolic, or mean brachial artery pressure.

Comment

The microvascular hyperaemic response to thermal injury is impaired at diagnosis in patients with non-insulin dependent diabetes, although how long they have had the disease is unknown. The impairment is considerable even compared with insulin dependent patients with moderate duration of diabetes (median 19 years), and the relation to the duration of diabetes is unlikely to provide the whole explanation.[2] Increased peripheral resistance may occur in the non-insulin dependent subjects during the non-diabetic but hyperinsulinaemic, insulin resistant phase before pancreatic exhaustion.[3]

The microvascular mechanisms underlying the impairment may differ in the two types of diabetes, resistance occurring higher in the arteriolar tree, where it would contribute more to peripheral resistance.[4] Such a concept would be in keeping with contemporary reasoning linking insulin resistance and hypertension.[5]

The mechanism underlying the development of impaired maximum hyperaemic response in newly diagnosed non-insulin dependent diabetic patients requires elucidation. The impairment in vasodilatory reserve may possibly contribute to foot ulceration.

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ONE HUNDRED YEARS AGO

The proposal to establish ambulance classes for the mercantile marine appears to be one in every way well worthy of support. The great ocean-going steamers belonging to the passenger lines carry surgeons; but ordinary cargo boats, whether "ocean tramps" or sailing ships, do not; when accidents occur, or when sickness breaks out on board such boats, the captain or some other officer consults the book of instructions, which is supposed to be found in company with the ship's medicine chest, and many are the yarns told as to the peculiarities of the consequent practice. If these officers, who are generally men of considerable intelligence and mother-wit, could find at the chief ports classes specially arranged to meet their convenience and needs, they would probably take advantage of them to pick up a few useful hints. Such knowledge would be of great use to them if called upon to treat burns or scalds, to reanimate the apparently drowned or partially suffocated, or to arrest haemorrhage. As to fractures, it should be quite possible to teach the sailor, with his well-known handiness, how to deal with all fractures so as to diminish pain, and with many simple fractures so as to produce a fairly satisfactory cure. At Liverpool, the meeting of shipowners which decided that ambulance courses ought to be established, adopted a resolution which went a good deal further: "To establish ambulance classes specially adapted for sea service, and include in the course of lectures the important subjects of ship sanitation and personal hygiene." As we have frequently pointed out, there is great room for improvement in sanitation, not only in "ocean tramps," but in ocean liners otherwise well appointed. (*British Medical Journal* 1891;i:538)