Peripheral blood flow in patients with diabetes mellitus

Dear Sir,

The recent paper by Gilmore et al. [1] dealing with "peripheral vasoconstrictor responses and cardiovascular autonomic function tests in diabetic patients" is notable for several reasons: (1) There is no information about the type of diabetes mellitus or the treatment received by the patients. From Table 1 it appears that both insulin-dependent and insulin-independent patients may have been lumped together, which is a dubious procedure. (2) There is no information regarding glycaemic control at the time of the study, or the relation between treatment and measurement times. (3) Assessment of "central autonomic function" was on the basis of heart rate responses to the Valsalva manoeuvre, deep breathing and standing. Elsewhere [2–4] it has been pointed out how such estimates can produce spurious results.

Apart from these points the paper of Gilmore et al. [1] is particularly remarkable because, although it deals with variability in hand and foot blood flows and responses to cooling, it fails to cite an earlier more extensive, and carefully – controlled study investigating the same topic [5]. Scott et al. [5] carried out detailed cardiovascular testing in well-characterized patients with insulin-dependent diabetes mellitus and, prior to investigating hand, forearm, calf, and foot blood flows (simultaneously), they monitored and managed patients throughout the preceding night to ensure they were relatively euglycaemic before measurements were begun. Apart from peripheral blood flows, measurements were made of systemic arterial blood pressures, heart rate, core temperature and heat production during cooling with a liquid conditioned suit (ie, a procedure identical to that subsequently used by Gilmore et al. [1]. Where there is sufficient information provided in the paper by Gilmore et al. [1] it is clear their results corroborate the findings of Scott et al. [5], and hence failure to cite this publication is misleading for readers unfamiliar with this area of research.

Yours sincerely,
T. Bennett

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Tests of autonomic function in diabetic subjects

Dear Sir,

We are grateful to Professor Bennett for his comments and take this opportunity of clarifying the points he raises about our recent paper [1]. Our long-term aim was to establish a relatively simple but reliable screening test for cardiovascular autonomic neuropathy in diabetic patients. Accordingly our techniques had to be non-invasive and easily tolerated by the patients. The measurements were carried out in thermally controlled conditions which were thermoneutral for patients and control subjects.

Fifty-two diabetic patients were studied of whom 27 had insulin-dependent diabetes and 25 had non-insulin-dependent diabetes. The aim of the study was to quantitate autonomic neuropathy which is a well recognised complication of both forms of the disease.

Patients were normally studied in the morning and measurements were commenced at least 3 h after hypoglycaemic medication had been taken. The mean glycosylated haemoglobin (HbA_{1c}) level in the diabetic patients was 10.2 with a range of 6.3–17.6.

It was appreciated that a single test of heart rate responses may not accurately reflect "central autonomic function" and for this reason the results of three different tests were incorporated in the scoring system described. The tests followed procedures described by Ewing [2] who felt that they have been proved to be of considerable diagnostic use in relating autonomic abnormalities to symptoms and prognosis.

We agree that impairment of thermoregulation may be a consequence of disordered peripheral vascular function in diabetic autonomic neuropathy as previously reported by Scott et al. [3]. The prime purpose of our study however, was to establish an objective assessment of sympathetic regulation of the circulation in the peripheries of diabetic patients. This allows a more complete evaluation of cardiovascular autonomic function than relying solely on tests of reflex heart rate responses.

Yours sincerely,
J.E. Gilmore, J.A. Allen and J.R. Hayes

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Causal inference in diabetic nephropathy

Dear Sir,

Nørgaard et al. [1] state "Our hypothesis is that the rise in blood pressure in Type 1 diabetic patients with renal complications is a consequence of, and not a cause of, nephropathy". This may or may not be true, but their study fails to test the hypothesis.