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rates increasing only slightly over the same 30-beat period. These diabetics had other evidence of vagal damage, with abnormal responses to the Valsalva manoeuvre and reduced R-R interval variation. The results of the drug studies on the three controls confirm that the reflex is mediated through the vagus.

In 1895 Hill suggested that changes in posture might provide a "most delicate test of the condition of the vasomotor mechanism," yet surprisingly little attention has been paid to the normal heart-rate response to standing. It is well recognised that there is a transient fall in blood pressure on standing, with stimulation of the carotid baroreceptors and consequent reflex tachycardia and peripheral vasoconstriction. Although it has long been known that in normal people the heart rate increases on standing, the immediate heart-rate response has only recently been briefly documented. As far as we are aware, the characteristic pattern that we describe has not previously been analysed in detail.

Although our results were first obtained from an accurate R-R interval analysis by computer, this study shows that heart-rate changes may also be detected with routine electrocardiography. As loss of a normal response is due to vagal damage, this provides the basis for a simple test of autonomic function that has considerable advantages over those now in use. Measurement of the 30:15 ratio gives a simple numerical value that reflects the presence or absence of the relative bradycardia. When the ratio is 1:00 or less vagal damage is probably present, although a value of less than 1:00 does not necessarily indicate more severe damage, as it will occur when there is a slight increase in heart rate over the 30-beat period. In the most severe cases, in which there is no change in heart rate on standing, the value will be exactly 1:00.

This test is simple to use and requires only a standard electrocardiograph and the ability of the patient to stand up. It is not effort-dependent and, so far as we know, cannot readily be "cheated." It correlates well with other recognised tests of cardiovascular reflex function in diabetes, is objective, requires no special patient co-operation, and is readily applicable as an outpatient procedure.

We thank Dr W G Macfie for allowing us to study subjects from a primary prevention trial of ischaemic heart disease, and Dr P J Watkins for his initial suggestion that we should look at this reflex response.

References
3 Ewing, D J, et al, Clinical Science and Molecular Medicine, 1974, 46, 295.

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was slightly diminished in one (case 3). Intracellular killing by monocytes showed a heterogeneous picture: either the monocytes were hyperactive or defective in this respect. The hyperactive killing might be explained as a compensatory mechanism in chronic candida infection. The slightly decreased killing by monocytes in case 3 was probably also due to diminished phagocytosis as our killing assay measures the overall result of phagocytosis and intracellular killing.

In cases 1 and 2 the killing defect was remarkable because this defect is serum-dependent. The conclusion that only the disturbance of intracellular killing is serum-dependent is justified, because the phagocytosis assay showed no difference between normal and patient's serum. The question of whether the serum of these two patients contains an inhibitor or lacks a stimulant is under investigation. In two patients with CMC an inhibitor of intracellular killing of candida by granulocytes has been reported.1

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Comparative clinical data (ranges given in parentheses) and ulcer recurrence rates in 33 patients with a healed chronic gastric ulcer treated prophylactically with either deglycyrrhizinised liquorice (DGL) or placebo

<table>
<thead>
<tr>
<th>No. of patients</th>
<th>DGL</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>61 (44-74)</td>
<td>54 (39-74)</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Mean duration of symptoms (years)</td>
<td>7 (1-15)</td>
<td>5 (1-20)</td>
</tr>
<tr>
<td>Mean duration of treatment (months)</td>
<td>16 (4-29)</td>
<td>12 (5-24)</td>
</tr>
<tr>
<td>Recurrent ulcer</td>
<td>45*</td>
<td>11*</td>
</tr>
<tr>
<td>Recurrence</td>
<td>89*</td>
<td>99*</td>
</tr>
</tbody>
</table>

*Difference not significant.

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