SHORT REPORTS

Study of possible risk factors for severe retinopathy in non-insulin dependent diabetics

Diabetic retinopathy is one of the commonest causes of visual loss in Britain. Various factors have been reported to be associated with retinopathy, but few studies have looked at these in relation to aetiological type of diabetes or severity of complications. We report a study of possible risk factors for severe retinopathy in a group of non-insulin dependent diabetics selected from our clinic.

Patients, methods, and results

We selected consecutively from the clinic 100 non-insulin dependent diabetics. Fifty had severe retinopathy (proliferative retinopathy or maculopathy) that had developed within 10 years of diagnosis (group 1), and 50 had no evidence of microvascular complications after more than 14 years of diabetes (group 2). Non-insulin dependent diabetes was diagnosed if patients developed diabetes in middle or late life without ketosis. Groups were compared with respect to sex, cigarette smoking, blood pressure, serum creatinine concentration, family history, treatment regimens, and glycaemic control. Blood pressure was measured by the same observer after three minutes' recumbency. Diastolic pressure was recorded as fifth phase (fourth phase if no clear end point). Glycaemic control was assessed as mean laboratory blood glucose value over the previous five years, most subjects having had a mid-morning and afternoon measurement before each clinic visit. Results were analysed by a Wilcoxon U or y2 test.

Mean clinic blood glucose values and current treatment regimens in groups 1 and 2

<table>
<thead>
<tr>
<th>Treatment required</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SEM) blood glucose (mmol/l)</td>
<td>8.8 (0.4)</td>
<td>8.9 (0.3)</td>
</tr>
<tr>
<td>Diet alone</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sulphonylurea</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Insulin</td>
<td>0.9</td>
<td>0.7</td>
</tr>
</tbody>
</table>

*There were no significant differences in mean clinic blood glucose measurements over previous five years or in current treatment regimens.

Conversion: SI to traditional units—Glucose: 1 mmol/l = 18 mg/100 ml.

There were no significant differences in mean age (63 SEM 1) v 62 (0.9) years) or percentage of ideal body weight (124 (SEM 4) v 120 (5)) between groups 1 and 2. Duration of diabetes was longer in group 2 (18 (SEM 0.7) years, range 15-34, v 10 (0.8) years, range 1-22). Mean blood pressure was significantly greater in group 1 than in group 2 (systolic 172 (SEM 5) v 142 (3) mm Hg, and diastolic 93 (2) v 80 (2) mm Hg; p < 0.001). Twenty two subjects in group 1 and two in group 2 were receiving antihypertensive agents (p < 0.001). In group 1 six subjects had persistent proteinuria of whom five had a raised serum creatinine concentration (range 130-200 mmol/1; 1.5-2.3 mg/100 ml). There were significantly more women in group 1 than in group 2 (31/50 v 21/50; p < 0.05). There were no significant differences in frequency of first degree family history of diabetes (20 in group 1 v 25 in group 2) or cigarette smoking (eight current and four previous smokers in past five years in group 1; 11 and 5 respectively in group 2). Mean clinic blood glucose concentrations over the previous five years were similar, as were the treatment regimens (table). Eleven subjects in group 1 and six in group 2 had coincident coronary artery, cerebrovascular, or peripheral vascular disease.

Comment

In this study hypertension, and to a less extent female sex, was most strongly associated with severe retinopathy in non-insulin dependent diabetes. No significant associations were found with cigarette smoking, family history, body weight, or diabetic control. An association between hypertension and retinopathy has been reported in insulin dependent diabetes2 and Pima Indians,3 but other reports have not separated patients into aetiological types or according to severity of complications.4 It has been suggested that the association might be related to coincident renal disease, but in our study only five subjects had renal impairment. An excess of female patients with retinopathy has been reported3 and may simply reflect the greater frequency of non-insulin dependent diabetes in women, but this would not explain why men predominated in our uncomplicated group. Surprisingly, glycaemic control and treatment regimens were similar in the two groups, but this may reflect our imperfect assessment of glycaemic control. Possibly poor control before complications develop is more important in the pathogenesis of microangiopathy.

We conclude that of the possible risk factors examined in patients with non-insulin dependent diabetes, hypertension was most closely associated with severe retinopathy.


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Pneumococcal bacteraemia in mother and son

Epidemics of pneumococcal infection have been described in certain crowded communities but in most British homes the risk of catching pneumococcal pneumonia from an affected relative is generally regarded as small.2 No special precautions are taken against cross infection, although the mortality from pneumococcal pneumonia (especially when accompanied by bacteraemia) is high.4 We describe the case of a mother with pneumonia and bacteraemia caused by Streptococcus pneumoniae type 1 who transmitted the disease to her son. The mother was admitted to hospital first and the son, though ill, did not seek medical attention.

Case histories

Case 1—A 69 year old woman with chronic bronchitis was admitted to this hospital with a two day history of increasing dyspnoea, left sided pleuritic pain, and non-productive cough. She was confused, tachypnoeic, feverish (38°C), centrally cyanosed, and had signs of pulmonary oedema in the left base. A chest radiograph confirmed collapse of the lower lobe and consolidation. Blood was obtained for culture but no spumt could be produced. Treatment was instituted with 500 mg ampicillin and 500 mg cefazolin intravenously four times a day and general supportive measures. S pneumoniae capsular type 1 was isolated from the blood culture after overnight incubation. Treatment was changed to benzylpenicillin 2 MU hourly. She had a very stormy course requiring monitored low dose oxygen for hypoxia, hypercapnia, and transient collapse of the whole left lung and was discharged on the 18th day. Two days after admission relatives had sought advice about her son, who lived in the same two bedroomed house. He had similar symptoms but did not wish to see a doctor. The general practitioner was alerted and on visiting confirmed that the son required urgent admission to hospital.

Case 2—The 32 year old son presented with a history of severe dyspnoea and pleuritic chest pain on the right. Since his mother’s admission four days...