

The profession will have to work out its own solutions. Is it equal to the challenge?

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The employment of diabetics

The success of individual diabetics in sport or athletics is often applauded in the media, but there is still considerable confusion in the minds of employers—and even some doctors—about the suitability of diabetics for various types of employment and about their reliability as employees.

Much of this confusion is due to a lack of understanding about the difference between the treatment of insulin dependent diabetics and non-insulin dependent diabetics and to misconceptions about the nature and incidence of diabetic complications and the disabilities they are likely to cause. Doctors must, therefore, understand the position themselves and take every opportunity to clarify it for others.

Diabetics controlled by diet alone and free of complications should be able to follow any occupation, while those who are controlled by diet and oral treatment and are free of complications and not subject to hypoglycaemia should be able to follow almost any occupation. Even insulin dependent diabetics are suitable for most occupations, but they must not be employed in a job where hypoglycaemic reactions could endanger themselves or other people. Thus they should not work on scaffolding, or near moving machinery, nor should they drive public service or heavy goods vehicles. They are not eligible for service with the armed forces, nor will they be granted a commercial airline pilot's licence or be able to drive a passenger train.

Unfortunately, diabetic retinopathy, nephropathy, and neuropathy may occur in both types of diabetes. Failing vision due to retinopathy and recurrent ulceration of the feet are two of the most disabling complications, but these affect only a few diabetic patients in a form severe enough to compromise their prospects for employment.

Little research has been done recently to determine the work record of diabetics, but a recent paper on the employment of diabetics¹ quoted earlier surveys^{2,3} which all confirmed that on the whole diabetics are good employees from the standpoint of attendance and length of service. As with non-diabetic employees, about half the absences from work among diabetics are due to respiratory or gastrointestinal disorders. Diabetics do not appear to be any more liable to accidents at work than non-diabetics, but they do have slightly more absenteeism due to sickness, especially those with more severe insulin dependent disease.

Shift work has often been considered unsuitable for diabetics because of the problem of adjusting the diet and the dose of insulin to a changing pattern of work, mealtimes, and rest. In fact, shift work presents no real problem for the non-insulin dependent diabetic, and with appropriate advice from his physician and dietitian the reasonably intelligent insulin dependent diabetic can make the necessary adjustments to his dietary and insulin regimen.

Driving presents a particular problem for insulin dependent diabetics. As stated above, such people should not hold either a licence to drive a public service vehicle or a licence to drive a heavy goods vehicle. Many occupations, however, require driving motorcars or light vans for which no special licence is required. It is for the employer to satisfy himself that any diabetic driver whom he employs is responsible and competent in managing his diabetic control. He should also seek confirmation that the driver has notified the Driver and Vehicle Licensing Centre about his diabetes and that his own or the company motor insurers have also been notified. The employed diabetic driver must be frank in all matters relating to his diabetes. Concealing the fact of his diabetes or of his liability to hypoglycaemia may have serious consequences in the event of an accident.

Mastbaum *et al*⁴ considered that the satisfactory placement of a diabetic in industry depends on the frequency and severity of hypoglycaemia, the adequacy of medical supervision, and the prevalence or absence of complications. It also depends on an enlightened attitude on the part of the employer and a responsible attitude on the part of the diabetic employee. Some employers may be reluctant to employ any diabetics, in the mistaken belief that they are likely to be unsatisfactory employees; others have been reluctant to employ diabetics because of the fear of future problems, while difficulty in negotiating superannuation arrangements on account of the associated life insurance may present an immediate problem, but one that can usually be overcome. Some diabetics believe that they have been discriminated against when applying for posts, either failing to achieve an interview or being passed over at interview in favour of a non-diabetic applicant. Such views are hard to substantiate but faced with two otherwise equally suitable applicants an employer might well select the non-diabetic, and in times of high unemployment the diabetic may find more than average difficulty in obtaining work.

Most newly diagnosed diabetics—certainly those who are insulin dependent—experience feelings of apprehension, inadequacy, and insecurity, and one of the physician's tasks is giving his patient confidence that he will be able to cope. Once this confidence has been gained and the treatment prescribed has restored a sense of wellbeing most diabetics will show considerable determination to live reasonably normal lives and will not allow their condition to interfere with their work. Indeed Soskin,⁵ citing his personal experience with the diabetic employee, observed that "the feeling engendered by the non-prejudicial acceptance of his handicap is apt to make him an unusually hard working and loyal employee."

While increasing emphasis is being given to ways of sharing the care of diabetics between hospital specialists and general practitioners most diabetics still appreciate the security provided by regular attendance at a diabetic clinic where dietetic advice and other educational facilities should be available. Employers should be willing to allow diabetic employees time off to attend their clinics. General practitioners should receive brief reports about their patients after each clinic attendance, and if there are problems specifically related to a diabetic's

employment the occupational medical officer should also be notified.

Few diabetics register on the Disabled Persons Register, but those with disabling complications may find it advantageous to do so and to seek the advice of their local disablement resettlement officer.

The present positive attitude towards the management of diabetes has ensured that most diabetics can be usefully and suitably employed, but the satisfactory care of the diabetic employee does require efficient medical support with good co-operation between the diabetic clinic, the family physician, and the occupational health service.

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Thrombosis, abortion, cerebral disease, and the lupus anticoagulant

Systemic lupus erythematosus, with its broad range of clinical and immunological abnormalities, continues to provide lessons relevant to research in a wider variety of disciplines and diseases. In some patients three apparently unrelated clinical features of systemic lupus erythematosus—recurrent venous thrombosis, central nervous system disease (including myelitis), and recurrent abortions—may, it seems, have common pathogenic mechanisms. Clinicians have suspected as much for some time—those dealing with many patients with systemic lupus erythematosus recognise a group of women who have as features of their disease multiple (even a dozen or more) spontaneous abortions, multiple deep vein and other thromboses, and neurological abnormalities including either putative cerebral thrombosis or myelitis or both. Interestingly, some of these patients have negative test results for antinuclear antibody.¹

The serological abnormality common to some (but not all) of these patients is a circulating anticardiolipin antibody responsible for the positive Wassermann reaction or so called false positive serological test for syphilis. Over 25 years ago Laurell and Nilsson² recognised that patients with systemic lupus erythematosus with biological false positive Wassermann reactions also had a high incidence of another “antilipid” antibody—the so called “lupus anticoagulant.” This antibody, now known to be present in conditions other than systemic lupus erythematosus, appears to act by interfering with the binding of phospholipid to form prothrombin activator, thereby affecting both the intrinsic and extrinsic clotting pathways.³ Though in laboratory tests the lupus anticoagulant slightly prolongs the partial thromboplastin time, the seeming paradox is that its presence in a patient's circulation appears

to be associated not with bleeding but with a tendency to thrombosis.⁴⁻⁹

Mueh *et al* reviewed 35 patients whose plasma possessed lupus anticoagulant activity. Six of these patients had systemic lupus erythematosus, and 24 had autoimmune abnormalities.⁸ Six of 28 patients had a positive Venereal Disease Research Laboratory test result. Eleven of the 35 patients suffered one or more thrombotic episodes, including cerebral thrombosis. Six of the patients had thrombocytopenia (possibly due to antibody activity against phospholipid antigen in the platelet membrane).

Another clinical association subsequently observed in association with the lupus anticoagulant is recurrent spontaneous abortion.⁵ One mechanism for this was suggested by Carreras *et al*,⁷ who studied a patient with recurrent arterial thrombosis and intrauterine fetal death. The IgG fraction of her serum containing lupus anticoagulant was found to inhibit the production of prostacyclin (PGI₂) by rat aorta and pregnant myometrium. They speculated that by its effect on phospholipids the lupus anticoagulant might interfere with the release of arachidonic acid from the cell membranes.

Recent studies from the Hammersmith Hospital have confirmed and extended the association of the lupus anticoagulant with thrombosis. Boey *et al* studied 31 patients with systemic lupus erythematosus and other connective tissue diseases whose plasma showed lupus anticoagulant activity.⁹ Thrombotic episodes such as deep vein thrombosis, pulmonary embolism, cerebral thrombosis, and axillary vein thrombosis were recorded in 18 of the 31. Of the 26 women with lupus anticoagulant activity, nine gave a history of one or more abortions. Seven of the 31 patients had positive Venereal Disease Research Laboratory test results. Asherson *et al*¹⁰ from the same unit reported six patients with systemic lupus erythematosus and pulmonary hypertension, five of whom had lupus anticoagulant activity—a finding that stimulates speculation on a possible wider role of lupus anticoagulant in “idiopathic” pulmonary hypertension, where serological abnormalities including false positive serological tests for syphilis have been previously observed, and where intrapulmonary venous thrombosis may be a contributing factor. Further interesting anecdotal observations from these studies were the association of antinuclear antibody negative discoid lupus erythematosus with the lupus anticoagulant and pulmonary hypertension¹⁰ and the association of the lupus anticoagulant with “idiopathic” portal hypertension in one patient and with renal vein thrombosis in two others.

Elegant studies supporting the concept that some antibodies may cross react with complex lipid antigens have been reported by Stollar, Schwartz, and others, who showed that monoclonal anti-DNA antibodies, raised from lupus mice, may bind a variety of polynucleotides and phospholipids.¹¹⁻¹³ One such antibody also had lupus anticoagulant activity. In such antibodies the antigenic determinants appeared to be the phosphodiester linked phosphate group present in some phospholipids, including cardiolipin, as well as in the sugar phosphate backbone of polynucleotides such as DNA.¹¹⁻¹³ Certain restricted groups of lymphocytes may produce antibodies with idiotypic diversity. Of interest is the report that immunisation of normal rabbits or mice with cardiolipin stimulates the production of both anticardiolipin and anti-DNA antibodies.¹³

These laboratory studies when taken with their clinical counterparts suggest that these antibodies may have pathogenic importance. By implication, therefore, their removal by immunosuppression, plasmapheresis, or (one day) by the use