

Accident Risk of the Diabetic Driver

The timely review by Drs. Ratner and Whitehouse (1) on the effects of hypoglycemia on patients with insulin-treated diabetes mellitus (ITDM) who drive motor vehicles and the accompanying editorial by Dr. Songer emphasize the lack of data available to assess the risk posed by the diabetic driver. This is also a controversial issue in the United Kingdom, and we recently reported (2) the results of a cohort study of 250 ITDM drivers who were randomly selected for a survey of driving habits in 1979, and who were reviewed 8 yr later with a postal questionnaire (3). At least 45 patients had died; 166 of 187 surviving patients replied, giving a response rate of 89%. Twenty-four patients (16 men, 8 women) had ceased driving (12 patients for reasons directly related to their diabetes) and 2 patients stopped voluntarily after road traffic accidents (RTAs). Two driver's licenses had been revoked by the licensing authority; in one case because of deteriorating vision, and in the other because of the patient's frailty (aged 75 yr). The remaining patients had decided to cease driving without any official restraint.

Thirty-four patients (25 men, 9 women; 21% of the total responding) admitted to ≥ 1 episode of hypoglycemia while driving since 1979; most had experienced ~ 1 episode/yr. Twenty-three patients suffered mild episodes of hypoglycemia, 7 patients had moderately severe hypoglycemia, and the severity of hypoglycemia was undisclosed by 4 patients. Patients who admitted to hypoglycemia while driving were more likely to have hypoglycemia unawareness (42 vs. 15%; $P < .01$).

Twenty-nine male drivers admitted to 40 RTAs over 8 yr; 9 RTAs (7 patients) were attributed to hypoglycemia. Ten female drivers admitted to 15 RTAs, none of which were apparently related to hypoglycemia. Male drivers admitting to RTAs suffered from hypoglycemia while driving more frequently, but hypoglycemia unawareness was not more common. No patient had died in a car accident. The mileage-adjusted accident rate was 4.9/1,000,000 miles driven for male diabetic drivers and 6.3/1,000,000 miles driven for female diabetic drivers. Two separate sources of data from auto insurance offices provided an overall accident rate for the United Kingdom of 10 and 9.5 accidents/1,000,000 miles, respectively. The lower accident rate observed in the diabetic group was attributed to the high proportion (70%) of patients who were 30–50 yr of age, a group recognized to be safer drivers. Diabetic drivers in the United Kingdom are not legally prohibited from driving heavy vehicles, but the licensing authority grants heavy goods vehicle (HGV) licenses to very few ITDM drivers (4). Eight patients in our cohort had been refused an HGV license and 5 had their HGV licenses revoked after development of ITDM; only 3 patients currently hold HGV licenses.

Our survey, which incorporated data from 1350 patient-yr of experience and 10.5 million miles driven,

indicated that, although $\sim 15\%$ of RTAs involving diabetic patients may be attributable to hypoglycemia, the overall accident rate for diabetic drivers does not appear to be increased compared to that of the general population. Furthermore, most ITDM patients voluntarily stop driving as their health declines. Patients with an increased risk of RTAs are identifiable (through recognition of hypoglycemia unawareness or admission of previous episodes of hypoglycemia while driving), and should receive additional education about the measures required to avoid this problem while driving. Our results support the widely held, but poorly documented, belief that the suitability of any ITDM patient to hold a vehicle license, whether for a car or a commercial vehicle, should be assessed with regard to individual circumstances and not according to a universal policy that could unjustifiably restrict the driving of a significant proportion of diabetic patients.

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3. Frier BM, Matthews DM, Steel JM, Duncan LJP: Driving and insulin-dependent diabetes. *Lancet* 1:1232–34, 1980
4. Cockram CS, Dutton T, Sonksen PH: A summary of the current medical and legal position based upon a recent heavy goods vehicle (HGV) case. *Diabetic Med*: 3:137–40, 1986

Breast Augmentation: A New Therapeutic Use for Insulin?

A 27-yr-old woman has been in our care since 1980 for insulin-dependent diabetes mellitus. One year later she was diagnosed with multiple sclerosis after an episode of retrobulbar neuritis and blindness in the right eye. Since then she has developed progressively worsening spastic paraparesis and upper-limb ataxia and loss of sphincter control. Recently, she came to us with a complaint of painful engorged breasts that were becoming progressively larger over a 3-mo period. There was no evidence of galactorrhea and no history of menstrual abnormality. The prolactin level was 5 $\mu\text{g/ml}$. At the time the patient was taking primidone, ketoconazole, and Valium, and there had been no recent change in her drug regimen. Blood glucose was controlled during that period with one daily injection of Actrapid and Monotard insulin (Squibb-Novo, Princeton, NJ), and blood glucose levels were not significantly different than during the previous 3 mo (av daily glucose levels were 198 mg/dl). After further questioning, it was found that