Type 1 Diabetes and road traffic incidents
Dr Martin Tohill, 2005

ABSTRACT

Background: Type 1 diabetes in drivers of motor vehicles is assumed to be a hazard for road safety. Identification of particular risk factors may enable preventive strategies. A case referent study was undertaken to identify factors linked to road traffic incidents in drivers with type 1 diabetes mellitus.

Objective: To undertake a detailed investigation of a number of disease and non-disease risk factors for road traffic incidents in drivers with type 1 diabetes mellitus.

Methods: An initial three rounds of postal questionnaire was sent to a population of 942 patients with type 1 diabetes mellitus attending the Diabetes clinic at the Royal Victoria Hospital, Belfast. Four hundred and eighty two responders included 311 eligible participants and 171 who were ineligible. Structured telephone interviews were undertaken with the 311, identifying 92 cases (who had a road traffic incident in the past 2 years) and 219 referents (who did not have a road traffic incident in the past 2 years).

Results: Following multivariate analysis, risk factors for road traffic incidents were the absence of awareness of hypoglycaemic symptoms (OR 44.2, \(p<0.001\)), the presence of only neuroglycopaenic symptoms of hypoglycaemia (OR 7.4, \(p<0.01\)), higher insulin dose (OR 5.3, \(p<0.01\)), a frequency of driving 5+ times per day (OR 5.6, \(p<0.001\)), a history of having a previous hypoglycaemic episode while driving without taking sugar (OR 22.6, \(p<0.01\)) and being on a Beta Blocker (OR 6.1, \(p<0.01\)). Higher HbA1C level was protective (OR 0.3, \(p<0.001\)), as was testing blood sugar before driving (OR 0.2, \(p<0.001\)).

Conclusions: The results demonstrate that intensive blood glucose management, hypoglycaemia unawareness and frequent driving are risk factors for road traffic incidents. Patients, clinicians and occupational physicians should be aware of these risk factors and of the protective value of self blood glucose monitoring before driving.

Keywords: Type 1 diabetes, driving, road traffic incident, hypoglycaemia, insulin dose, HbA1C, Beta Blocker.