Diabetes Mellitus and Crash Risk

Skurveit et al. Road traffic accident risk in patients with diabetes mellitus receiving blood glucose-lowering drugs. Diabetic Medicine 2009;26:404-408

Cohort Study

- All Norwegians, ages 18-69yrs
  - **3,100,000 people**
- April 2004 through September 2006

Crash Data:

- Road Accident Registry database

Death/emigration data:

- Central Population Registry

Prescription data:

- National prescription medication database

Statistical Analyses

- Exposure period: Time from first prescription of insulin or oral hypoglycemic agent
- Crash incidence rates (person-time)
  - Ratio of accident incidence in exposed person-time vs. incidence of accidents in unexposed person-time by Standardized Incidence Ratio (SIR)

Results

- 20,494 traffic accidents with personal injuries
  - 183 accidents in insulin users not taking oral agents
  - 219 in users on oral agents not taking insulin

Crash Risk for Insulin use
(SIR, 95% CI)

Ages	Male	Female
18-34	1.5 (1.1-2.0)	1.5 (1.0-2.3)
35-54	1.2 (0.9-1.6)	1.4 (0.8-2.1)
55-69	1.3 (0.8-1.8)	1.5 (0.6-2.6)

Overall SIR 1.4 (1.2-1.6)

Crash Risk for OHA use
(SIR, 95% CI)

Ages	Male	Female
18-34	1.0 (0.1-2.1)	1.4 (0.8-2.2)
35-54	1.2 (1.0-1.6)	0.9 (0.5-1.3)
55-69	1.2 (0.9-1.4)	1.0 (0.6-1.5)

Overall SIR 1.2 (1.0-1.3)

Crash Risk for Insulin plus OHA use (SIR, 95% CI)

Ages	Male	Female
18-34	2.7 (1.0-5.9)	1.1 (0.1-4.0)
35-54	1.7 (1.1-2.4)	1.3 (0.5-2.3)
55-69	1.2 (0.8-1.7)	0.8 (0.3-1.6)

Overall SIR 1.4 (1.1-1.7)

Conclusions

- The evidence base is now considerably stronger for diabetes mellitus than when the MRB previously reviewed this matter.
- Diabetes treated with oral agents is associated with a 20% increased risk of crash
- Treatment with insulin is associated with a 40% increased risk of crash
- Treatment with both is associated with a 40% increased risk
- There is no evidence of lower risk among younger or middle aged adults.
- This MRB member believes prior recommendations should be revisited.