Crash-related mortality and model year: are newer vehicles safer?

Objective: The objective of this study was to determine whether occupants of newer vehicles experience a lower risk of crash-related mortality.

Methods: The occurrence of death was studied in relation to vehicle model year (MY) among front seat vehicular occupants, age ≥ 16 captured in the National Automotive Sampling System Crashworthiness Data System (NASS-CDS) between 2000 and 2008. The associations between death and other occupant, vehicular and crash characteristics were also explored. Multiple logistic regression models for the prediction of death were built with model year as the independent variable and other characteristics linked to death as covariates. Imputation was used for missing data; weighted data was used.

Results: A total of 70,314 cases representing 30,514,372 weighted cases were available for analysis. Death occurred in 0.6% of the weighted population. Death was linked to age>60, male gender, higher BMI, near lateral direction of impact, high delta v, rollover, ejection and vehicle mismatch, and negatively associated with seatbelt use and rear and far lateral direction of impact. Mortality decreased with later model year groups (MY<94 0.78%, MY 94-97 0.53%, MY 98-04 0.51% and MY 05-08 0.38%, p=<0.0001). After adjustment for confounders, MY 94-97, MY 98-04 and MY 05-08 showed decreased odds of death [OR 0.80 (0.69-0.94), 0.82 (0.70-0.97), and 0.67 (0.47-0.96), respectively] when compared to MY <94.

Conclusion: Newer vehicles are associated with lower crash-related mortality. Their introduction into the vehicle fleet may explain, at least in part, the decrease in mortality rates in the past two decades.