

Association between major injuries and seat locations in a motorcoach rollover accident

林宏榮

Chang WH;Guo HR;Lin HJ;Chang YH;

摘要

Abstract

Motorcoaches and buses have the highest accident rate among different kinds of vehicles in Taiwan. It is, therefore, important to modify motorcoach designs so that they increase passenger safety. We collected patient data from a motorcoach rollover accident to assess the major injuries of the passengers and the associated risk factors for each type of injury. The accident occurred on a summer day in 2003 in central eastern Taiwan. A double-decker motorcoach carrying 46 passengers and a driver rolled over onto its left side on a downhill path because the coach's brakes failed. On the upper deck, the coach had four columns of seats, two on either side of a center aisle: 12 pairs on the left side, and 10 pairs on the right. Of the 41 seated people on the upper deck, the passengers in the down side (left seats) of each pair of seats had higher Injury Severity Scores than those in the up side (right seats), and passengers ≥ 65 years old had relatively higher rates of hemothorax and head injuries with subarachnoid hemorrhage or intracranial hemorrhage than those < 65 . Multivariate analysis showed that age ≥ 65 years and sitting on the down side at the time of rollover were independent risk factors for major injuries. Our analysis of the data from this motorcoach rollover accident showed that most major injuries occurred as passengers in the up side seats were thrown from their seats and compressed the neighboring passengers in the down side. We hypothesize that occupant restraint devices, such as seat belts, might prevent or reduce some injuries in motorcoach rollover accidents.