What are the criteria for detecting accident-prone brain-injured drivers?

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Resuming driving after a brain injury is a delicate question. Indeed, there are currently no reliable and unanimous criteria for the assessment of driving abilities. If professionals use more often driving simulators, the advice given to the patient still depends on the subjectivity of the person who assesses the driving task and on the simulated scenarios, which are often arbitrarily developed and very risky, even for drivers without brain damage. To overcome this problem, we have developed driving scenarios involving cognitive processes that are often impaired in brain-injured people (e.g., attentional processes, anticipation, planning). Three driving scenarios were created to simulate an urban road, a rural road, and a rural road at night. These scenarios shared 17 critical events that were designed to generate avoidable accidents in the normal driving population. Upon an event, one of two things could occur, an accident, or an inappropriate behaviour, in which case it was possible to identify the underlying cognitive deficits on the basis of objective indicators (e.g., reaction time, visual exploration, time to contact).

Of the 17 events, five resulted in an accident for many of the brain-injured participants. Brain injured people caused 18 accidents, whereas only one accident was caused by a control participant. The other scenarios helped to identify accident-prone participants whose cognitive deficits induced a mismanagement of critical events (e.g. slow decision-making despite good attentional processes).

Conclusion

The preliminary results of this survey should have consequences such as improvement of screening in this population and better follow up.