Trafikoftalmologisk forskningsprojekt nu tilgængeligt på internettet

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Foto: Morten Langkilde.

Der er fremdeles tilbagevendende interesse for mit trafikmedicinske forskningsprojekt:
"Visual functions and traffic accidents. A Danish study based on 359 motor vehicle accidents resulting in human injury, with case reports".

Arbejdet blev i sin tid (1999) desværre ikke accepteret som supplementum i Acta Ophthalmologica. Jeg havde derfor opgivet at få det udgivet.

Et projekt af tilsvarende art og omfang var ikke tidligere gennemført i Skandinavien. Problemstillingen i dag er ikke mindre relevant, end den var på daværende tidspunkt. Lovgivningen på området er i Danmark uændret fra 1999. Den demografiske udvikling har medført, at der med den fremadskridende "ældrebølge" nu er langt flere bilister i moden alder med synsproblemer, end da dataindsamlingen blev gennemført (ifølge svenske tal næsten en fordobling). Yderligere står vi som øjenlæger i dag bedre rustet end nogensinde til at kunne afhjælpe disse ældre bilisters synsproblemer.

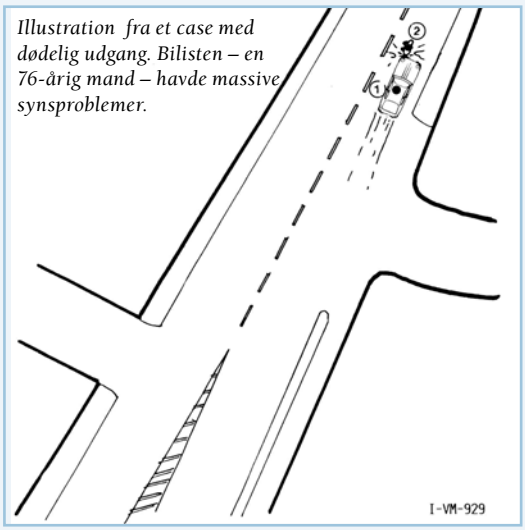

Illustration fra et case med dødelig udgang. Bilisten – en 76-årig mand – havde massive synsproblemer.

På denne baggrund – og med de nye muligheder, der har åbnet sig – har jeg derfor besluttet, at publikationen i sin helhed skal være tilgængelig på internettet for alle trafikmedicinsk og -oftalmologisk interesserede læsere. Det kan ses som et historisk, men stadig aktuelt videnskabeligt dokument. Jeg kan kun dybt beklage, at dette sker med så stor forsinkelse.

Det er mit håb, som det var, da jeg gennemførte studiet, at arbejdet på trods af den ikke ønskede udsættelse i fremtiden kan bidrage til at reducere antallet af meningsløse synsrelaterede trafikulykker. Få situationer i livet byder vort syn på en så skæbnesvanger opgave, som når det gælder ansvaret for liv og helse bag rattet i et motorkøretøj i tidens dynamiske trafik. – Det er desuden, som det var i sin tid, mit ønske, at publikationen skal kunne tjene som et relevant skandinavisk opslagsværk for de kolleger, der jævnligt sidder over for patienter med et syns-/ kørekortproblem.

Studiet findes nu som PDF-fil med hyperlinks og downloades på internetadressen: http://www.retsmedicin.au.dk/publikationer/afhandlinger.

Både abstract, dansk og engelsk resume er her tilgængeligt, såvel som links til hele den trafikmedicinske publikation med litteraturoversigt og detaljeret dokumentation for særligt interesserede. Publikationen kan desuden i samlet, printet version (135 sider) bestilles pr. efterkrav (190 D kr. eller 200 N kr. + porto) ved henvendelse til forfatteren.

Opdateret, relevant information (siden 1999) om emnet med litteraturreferencer kan findes på følgende link fra Transportøkonomisk Institut (TØI), Oslo: http://tsh.toi.no/?21291#text9328

Mange gode kræfter støttede og hjalp mig i sin tid med at gennemføre studiet. Jeg vil her rette en stor tak til de forskningsfonde, kolleger og andre, som i sin tid bakkede mig op i projektets dataindsamlings-, analyse- og skrivefase. En særlig tak til Retsmedicinsk Institut, Århus Universitet, hvorfra arbejdet også udgik, for velvilligt at give adgang til projektet gennem instituttets hjemmeside.

Abstract: www.oftalmolog.com ■

abstract

Visual Functions and Traffic Accidents

A Danish study based on 359 motor vehicle accidents resulting in human injury, with case reports

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ABSTRACT.
Purpose and methods: A descriptive and analytical study of visual functions in Danish drivers involved in automobile accidents has been performed. A total of 562 active (i.e. not passengers) road users, aged > years 10 involved in 359 car accidents resulting in human injury in the police district of Aarhus county (284,000 inhabitants) was registered: 405 car drivers (156 aged > 50 years) and 157 unprotected road users were included. The participation rate was 76%. The non responders' vision was evaluated through contact to ophthalmologists or general practitioners. In this way vision data was obtained in 93% of the study group. A control group of 138 randomly selected active car drivers, aged > 50 years, were correspondingly examined with a participation rate of 83%. If available, police reports were studied in all relevant accidents. A case/control study was performed in 204 drivers (91 cases and 113 controls), aged > 50 years. Eighty two vision/accident relevant case reports and 24 accident reports on medical conditions are published separately, 43 illustrated.

Results and discussion: Among the investigated car drivers involved in accidents, 1.6% aged < 50 years had a corrected visual acuity below the legal level at the time of the accidents. Correspondingly, the proportions were 8% in 50 69 year old persons and 25% in drivers aged > 70 years. No significant differences could be demonstrated on visual parameters between males and females, although a longer period since last visual test was found in males (p< 0.01). In twelve out of 14 drivers (86%) with unilateral reduction of visual acuity, being involved in intersection accidents, the collision happened from the side with impaired vision (p< 0.02). Eleven of such bumpings (79%) took place from the left side (p< 0.06). A renewal of optical correction was sufficient to legalize the driver's vision in 15 of 17 accident drivers with visual acuity at (2) or below (15) the legal limit (88%, 95% confidence interval (CI):[64% 99%]. Tested binocularly, correspondingly 8 out of 9 drivers (89%) with visual acuity below 0.5 achieved legal vision after today=s standard by new glasses. In 16 % [CI: 10 23%] of the accident involved drivers aged > 50 years, an acute or chronic medical condition, including significant visual problems, was estimated to be of contributory importance for the accidents.

Multiple logistic regression analyses with vision/accident risk estimates were carried out on 204 drivers aged > 50 years (the case/control study) with correction for age, sex, annual driving, daily alcohol consumption, percentage of urban and professional driving, and visual reaction time. Traffic accident risk was found to be significantly associated with quality of vision. Illustratively each accident is further individually evaluated for such an association. Contrast sensitivity (odds ratio (OR) = 1.99, [CI: 1.3-3.1], p= 0.003), and to a less degree unilaterally reduced visual acuity (OR=5.21,[CI: 1.3-20.6], p= 0.02), and binocular visual acuity (OR= 4.35, [CI: 1.1-17.5], p= 0.03) seemed to be important test variables. Binocular visual acuity was identified as a stronger risk indicator than monocularly tested visual acuity (OR= 3.65, [CI: 0.9-15.6], p= 0.08). It can not be ruled out that stereopsis (OR= 2.15, [CI: 1.0-4.7], p= 0.05) and the time interval since last visual test (OR= 1.55, [CI: 0.97-2.5], p= 0.07) are critical factors. No association was found with central or paracentral visual field defects, visual field defects tested a.m. Donders, colour vision defects or refraction. Several visual variables tested were found mutually associated. The health consequences of accidents with driver's visual acuity at or below the lawful limit did not differ from the main group of accidents. A vision/accident association is cautiously estimated as probable in 430 [216-761] traffic accidents with human injury in Denmark per year, or one per day.

Conclusions: Elderly drivers' compensation for their increasing visual problems in the form of a change in driving behaviour is not fully adequate. One way to reduce the problem may be to perform more efficient and consistent re testing of drivers' vision at appropriate intervals and with adequate procedures. Due to the fast growing population of elderly drivers world-wide, this seems increasingly relevant. Furthermore, when applied to relevant age groups, a screening program may to some extent function as a valuable health prophylaxis, including prevention of diseases and blindness. The implementation of such steps in individual countries, however, is a question of health politics.

For selected group of drivers at doubt, modern visual attenuation test methods such as useful field of view and/or interactive driving simulators might be useful in the future.

Key words: vision, driving, traffic accidents, legislation, Denmark, visual function, case reports, Epidemiology, motor vehicle accidents, human injury.