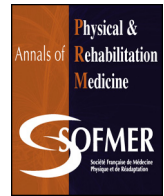




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Review

Return to drive after non-evolutive brain damage: French recommendations

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ABSTRACT

Return to drive after brain damage is a crucial question either for patients than health professionals. The Société française de médecine physique et de réadaptation (SOFMER) and Comète France association developed recommendations for patient's identification, evaluation and accompaniment as part of their project to resume to drive. The place of rehabilitation process and patient's focus has been also discussed. *Aims:* Using a literature review, the aim was to define clinical pathways to determine people who need a fitness to drive evaluation after a non-evolutive brain damage as well as the assessment process. *Method:* Following the method for Clinical practice guidelines, 1388 abstracts were identified, among which 379 were analysed and confronted with the working group's experience. The draft propositions were submitted to a review group before being validated by the High French Health Authority. *Result:* No article enabled the development of recommendations above the "expert opinion". The detection of sensory (visual), sensitive, motor and/or cognitive sequelae is needed before return to drive. It is not recommended to return to drive in case of unilateral spatial neglect. Different assessment strategies, function of sequelae's gravity, are proposed after stroke or brain injury. In case of sequelae, the assessment process (clinical, cognitive, on road evaluation) has to be pluriprofessional. The results are the subject of a pluriprofessional synthesis, shared with the patient and, if possible, in the presence of a close. An accompaniment to maintain the best mobility of the person is needed, whatever the assessment result.

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1. Introduction

Driving is considered an essential activity for autonomy as well as social and occupational participation. It is a complex activity required motor, sensory and cognitive functions, and thus it can become impaired following brain damage. Even though there is no absolute consensus in the literature, several studies have shown an increase in car accidents in persons with traumatic brain injury (TBI) [1–3]. This risk was evaluated as 2 to 3 times higher than in the general population by Formisano et al. [4]. Thus, raising issues on the impact of sensory, functional and cognitive sequelae on the

driving abilities of persons with non-progressive acquired brain damage (NPABD), such as traumatic brain injury (TBI), cerebral anoxia, and encephalitis. Laws vary according to the different countries. In France the law of December 18, 2015 mentions the regulatory contraindications (epilepsy, homonymous hemianopsia) along with pathologies or symptoms requiring a fitness to drive medical certificate, however the evaluation modalities of this fitness to drive remain imprecise. For this reason, the SOFMER as well as other concerned interest groups and scientific societies decided to elaborate good practices guidelines in order to help healthcare professionals better inform and support their patients while abiding by the laws and regulations in place, and harmonizing the decisions of physicians able to deliver those fitness to drive certificates (In France, they are called certified physicians).

The objective of this article is to present these guidelines.

Abbreviations: HAS, French National Authority for Health; NPABD, non-progressive acquired brain damage; TBI, traumatic brain injury; UFOV, useful field of view.

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2. Method

Guidelines presented in this article stem from a work conducted according to the good practices recommendations designed by the French National Authority for Health [5]. A steering committee, representing the various organizations and scientific societies promoting the project, elaborated 5 questions to which the guidelines had to bring an answer, as well as defining exclusion criteria (regulatory contraindications to driving a vehicle, heavy or occupational vehicles, persons who did not have a driving license prior to their injury, progressive brain damage such a dementia and brain tumors). A working group (15 persons) analyzed the literature (according to the level of evidence and the usual criteria), and elaborated a guideline proposal was submitted to an independent reading group (61 members) before writing the guidelines, submitted to the French National Authority for Health and validated in January 2016 (Appendix 1).

The analysis of the literature was conducted from keywords concerning, driving, pathologies and healthcare professionals involved (Appendix 2). The databases used for this analysis were Medline, Science direct, Ric, NORART, Narcis, OTSeeker, Speech-Bite, PscyBite, National Health and Medical Research Council, ISOC-Psicologia, PsyIndex, PEDRO, EMBASE, Reedoc, and the Cochrane Library as well as websites publishing recommendations and accident report on this topic.

In all, 1388 abstracts were identified, 379 analyzed and 221 retained (Fig. 1). A rationale containing all the literature references is available on the co-promotors website (Appendix 1).

3. Results

Studies were analyzed and are presented here in answer to 5 questions elaborated by the steering committee. Overall, the level of evidence was quite low, and only the expert opinion level (level 5) was attributed to the 47 guidelines from this review of the literature (Appendix 3).

3.1. How to identify people whose pathology might impact their driving? (Appendix 3: R1-10)

French law, through a decree passed on 08/31/2010 amended by the decree of 12/18/2015 lists certain pathologies, such as TBI, or stroke (including transient ischemic attack) that require an assessment by a certified physician before resuming any driving [6]. Regarding the other neurological pathologies (encephalitis, brain anoxia), the need for consulting with a certified physician depends on the pathology-related symptoms and it becomes necessary in case of permanent movement coordination disorders, muscle strength or muscle control impairments or the presence of cognitive or psychiatric disorders. It is stated that the certified

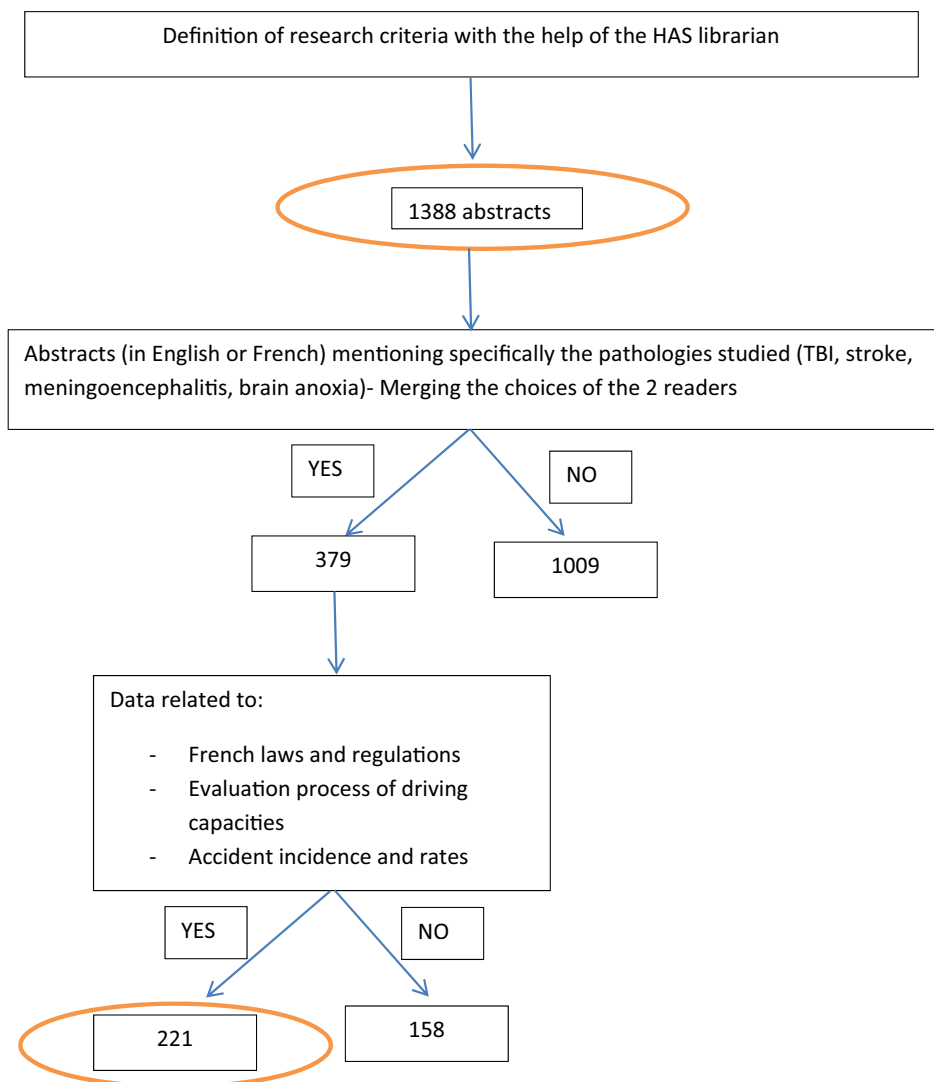


Fig. 1. Flow chart.

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