Fitness to drive in patients with brain tumours: the influence of mandatory reporting legislation on radiation oncologists in Canada

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ABSTRACT

Background

Certain jurisdictions in Canada legally require that physicians report unfit drivers. Physician attitudes and patterns of practice have yet to be evaluated in Canada for patients with brain tumours.

Methods

We conducted a survey of 97 radiation oncologists, eliciting demographics, knowledge of reporting laws, and attitudes on reporting guidelines for unfit drivers. Eight scenarios with varying disability levels were presented to determine the likelihood of a patient being reported as unfit to drive. Statistical comparisons were made using the Fisher exact test.

Results

Of physicians approached, 99% responded, and 97 physicians participated. Most respondents (87%) felt that laws in their province governing the reporting of medically unfit drivers were unclear. Of the responding physicians, 23 (24%) were unable to correctly identify whether their province had mandatory reporting legislation. Physicians from provinces without mandatory reporting legislation were significantly less likely to consider reporting patients to provincial authorities ($p = 0.001$), and for all clinical scenarios, the likelihood of reporting significantly depended on the physician’s provincial legal obligations.

Conclusions

The presence of provincial legislation is of primary importance in determining whether physicians will report brain tumour patients to drivers’ licensing authorities. In Canada, clear guidelines have to be developed to help in the assessment of whether brain tumour patients should drive.

KEY WORDS

Driving, brain tumour, Canadian health system, guidelines

1. INTRODUCTION

Approximately 10,000 individuals in Canada are diagnosed with primary malignant or benign brain tumours annually. It is estimated that an additional 140,000 to 300,000 new cases of brain metastases are diagnosed annually in North America. Physical or neurocognitive deficits related to patient-, tumour-, and treatment-related factors may preclude a patient’s ability to perform important daily activities such as driving a motor vehicle. The associated implications are serious: each year, an estimated 5000 people are killed in motor vehicle accidents involving medically unfit drivers. The ability to drive is essential in maintaining lifestyle and autonomy for many individuals. Coincidentally, patients with the greatest dependence on driving for their mobility may be the most likely to be restricted from driving because of their disability.

Physicians have a medical, ethical, and often a legal responsibility to understand which medical conditions impede the ability to drive, and to inform their patients of the implications of driving with those conditions. All provinces and territories in Canada except for Nova Scotia, Alberta, and Quebec currently impose on physicians a legal requirement to report drivers with medical conditions that impede their ability to safely operate a motor vehicle. However, the legal requirement to report potentially unfit drivers to the proper authorities varies between provinces with a reporting requirement.
compounding the issue, the interpretation of such laws is often subjective, and thus the obligations and potential liability for physicians in this area are unclear.

Canadian studies have evaluated the relation between accident risk and the conditions of vestibular dysfunction, cardiac dysfunction, dementia, and epilepsy, with mandatory physician reporting to the ministry of transportation. The Canadian Medical Association, in an attempt to assist physicians in determining the conditions that may make it dangerous to drive safely, published a document titled Determining Medical Fitness to Operate Motor Vehicles. CMA Driver’s Guide. Although the guidelines are clear with respect to patients with seizures (grounds for immediate cessation of all driving activities), the guidelines are less clear for brain tumour patients without seizures, advising that no general recommendation can be made about driving, but that the professional judgment of the consulting physicians should be sought, and each case should be evaluated individually.

Given the lack of clear and consistent guidelines, the objectives of the present work were

• to examine patterns and attitudes in Canada among radiation oncologists with respect to reporting patients with brain tumours to the ministry of transportation,

• to determine the knowledge of Canadian radiation oncologists about the laws related to driving fitness.

• to review the relevant literature on guidelines for the physician’s role in determining fitness of brain cancer patients to drive a motor vehicle.

2. METHODS

We created a 10-question survey (Table 1) that elicited demographics, knowledge and attitudes on provincial reporting laws, and for 8 clinical scenarios, whether the respondent would report a patient to the provincial or territorial transportation authority as unfit to drive. The survey questions were developed by a group of physicians from the London Regional Cancer Program with specialization in brain tumour management and expertise in survey design, and the survey was piloted with radiation oncologists at the Program to test for clarity. The final survey was distributed by hand to radiation oncology consultants and postgraduate medical residents attending the Canadian Association of Radiation Oncology 2010 annual meeting. During the conference, survey respondents completed the questionnaire and gave consent for participation.

The Fisher exact test was used to assess the relation between a respondent’s considering reporting a patient with a newly diagnosed brain tumour to the provincial or territorial licensing authority and level of training (staff or resident), the number of brain cancer patients seen within a practice per year, the practice setting (academic or community), and the presence of legislation within the province of practice. In the clinical scenarios, the same factors were assessed with respect to the respondents’ likelihood to report the patient in each scenario. Data were analyzed using the SPSS software application (version 19.0: SPSS, Chicago, IL, U.S.A.), with \( p \leq 0.05 \) considered to be statistically significant.

3. RESULTS

Among the 218 physicians who attended the meeting, 59 consultants and 38 residents completed the survey, with 99% of the physicians approached responding. Table 1 summarizes the respondent demographics. A preponderance of the respondents (87%) felt that the laws in their province governing the reporting of medically unfit drivers were unclear. Respondents felt that neurologists or neurosurgeons were most responsible in their practice to report a brain cancer patient’s inability to drive (34%), followed by primary care physicians (26%), radiation oncologists (14%), and medical oncologists (1%). Emergency physicians were not felt to be most responsible (0%) in reporting these patients. The survey prompted respondents to select the physician most responsible to report an unfit driver, but 22% of respondents refused to select only one physician and indicated feeling that all physicians are equally responsible.

Of the 97 respondents, 75 (77%) would consider reporting patients with a newly diagnosed brain tumour to their provincial or territorial authority; 23 (24%) were unable to correctly identify whether their province had mandatory reporting legislation. Of respondents from provinces with a legal requirement to report medically unfit drivers, 92% accurately identified the presence of a law; of those from provinces with no legal requirement to report medically unfit drivers, only 21% accurately identified the absence of such a law in their jurisdiction (Table 1).

In each clinical scenario, a physician’s inclination to report to the provincial or territorial authority was independent of level of training (staff or resident), number of brain tumour patients seen within a practice, primary brain cancer within a practice, and practice setting (academic or community). For all clinical scenarios, physicians from provinces without mandatory legislation were significantly less likely to consider reporting newly diagnosed patients to provincial authorities than were their counterparts from provinces with a legal obligation (all \( p < 0.05 \), Table 1).

4. DISCUSSION

We designed a survey to elucidate attitudes and patterns of practice of physicians from the radiation
The study survey

1) What province do you work in? (please circle)
   BC   AB   SK   MB   ON   QC   NS   NB   PE   NL

2) What level of training are you currently at or how many years have you been practicing as a radiation oncologist?
   PGY  1  2  3  4  5  6  Consultant—# years in practice

If you are currently in training, please skip to Question 5

3) What type of practice are you in? (please circle)
   Academic   Community

4) Do you treat primary CNS cancer in your regular practice?
   Yes   No

5) How many patients do you see in a year with CNS disease (either primary brain tumour or brain mets)? (please circle)
   <10  10–20  >20

6) Is there a legal obligation in your province to report a medical condition that may affect the ability to operate a motor vehicle safely?
   Yes   No   Don’t Know

7) Do you consider reporting patients with newly diagnosed CNS disease from cancer to your provincial driving licensing authority?
   Yes   No

8) For which of the following scenarios would you report a patient with metastasis/metastases to brain, if any?
   Incidental finding on CT of a single brain metastasis (asymptomatic)  Y   N
   Incidental finding on CT of 4 brain metastases (asymptomatic)  Y   N
   Presenting with headaches and finding on CT of 1 brain metastasis  Y   N
   Presenting with headaches and finding on CT of 4 brain metastases  Y   N
   Presenting with right-sided weakness that has resolved with corticosteroids with probable single large brain metastasis on CT  Y   N
   Presenting with a generalized seizure controlled on anticonvulsants for 10 days with probable single large brain metastasis on CT  Y   N
   Low grade glioma, no seizures or disability on observation  Y   N
   Complete resection of solitary brain metastasis followed by whole-brain RT without seizures, on observation  Y   N

9) For a typical case of newly diagnosed CNS cancer in your practice, whom do you feel is most responsible for the decision to report a patient to your provincial driving licensing authority?
   Emergency room physician   Neurologist/neurosurgeon   Radiation oncologist
   Medical oncologist   Family physician

10) Do you feel current guidelines are clear in their expectations for physicians managing patients with CNS involvement of cancer?
    Yes   No

Do you have any other comments?

PGY = postgraduate year; CNS = central nervous system; CT = computed tomography; RT = radiotherapy.
cancer patients are medically fit to drive, but a recent survey of Canadian family physicians indicated that more than 45% of physicians are not confident in assessing driving fitness and do not consider themselves to be the professionals most qualified to do so. In situations in which there are several treating physicians, each physician could possibly assume that one of the others has made a report when in fact no report has been made. The Canadian Medical Protective Association recommends that in such situations, each treating physician independently comply with the relevant provincial reporting obligation.

A review of the relevant literature included an Australian survey evaluating the driving advice given by neurosurgeons, neurologists, and radiation oncologists to patients diagnosed with brain tumours. In that study, 73% of respondents were unaware of the existence of any driving guidelines. Accordingly, nearly half the respondents had difficulty making a decision when asked by brain tumour patients about their ability to drive. A more recent American survey demonstrated that the exact medicolegal responsibility of the treating physician with respect to driving restriction for brain cancer patients is ill-defined and that only 31% of respondents address driving restrictions in every patient with a brain tumour. In the United Kingdom, driving restrictions for brain tumour patients are considerably more detailed and designed according to perceived risk based on histologic subtype and location of intracranial disease.

The generalizability of our research might be challenged on the merits of it having been performed within a single subspecialty and limited to those attending a national meeting; however, our findings confirm and build on previous literature indicating that physicians are uncertain in many cases about their duty with respect to reporting medically unfit drivers. Congruent with the American and Australian studies, we found that radiation oncologists in Canada are heterogeneous in their knowledge and application of the laws on reporting ability to drive in their patients. Redelmeier et al. enumerated several factors that may contribute to the reluctance and uncertainty of physicians to report patients as unfit to drive to provincial or territorial transportation authority: an intent to preserve the patient’s quality of life, a lack of attention, a lack of tools to determine fitness, and a lack of straightforwardness of the reporting requirements. Indeed, the physician is challenged by the competing interests of being a patient advocate and also a protector of society.

Marshall and Gilbert reported that 59.5% of respondents felt that the physician–patient relationship was negatively affected by reporting a patient unfit to drive. Even in patients who recover functionality, motor vehicle insurance premiums may be affected because of previous license suspension, making insurance unaffordable.

table ii  Respondent demographics

| Variable                          | Respondents | p Value
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(n) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Province of practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alberta</td>
<td>11 11.3</td>
<td>Not</td>
</tr>
<tr>
<td>British Columbia</td>
<td>7 7.2</td>
<td>performed</td>
</tr>
<tr>
<td>Manitoba</td>
<td>2 2.1</td>
<td></td>
</tr>
<tr>
<td>Newfoundland</td>
<td>1 1.0</td>
<td></td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>1 1.0</td>
<td></td>
</tr>
<tr>
<td>Ontario</td>
<td>61 62.9</td>
<td></td>
</tr>
<tr>
<td>Quebec</td>
<td>12 12.4</td>
<td></td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>2 2.1</td>
<td></td>
</tr>
<tr>
<td>Years in practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident or fellow</td>
<td>38 39.2</td>
<td>0.321</td>
</tr>
<tr>
<td>&lt;10 Years</td>
<td>22 22.7</td>
<td></td>
</tr>
<tr>
<td>10–20 Years</td>
<td>25 25.8</td>
<td></td>
</tr>
<tr>
<td>&gt;20 Years</td>
<td>12 12.4</td>
<td></td>
</tr>
<tr>
<td>Practice type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic</td>
<td>90 92.8</td>
<td>0.50</td>
</tr>
<tr>
<td>Community</td>
<td>7 7.2</td>
<td></td>
</tr>
<tr>
<td>CNS primary site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>82 84.5</td>
<td>0.712</td>
</tr>
<tr>
<td>No</td>
<td>15 15.5</td>
<td></td>
</tr>
<tr>
<td>CNS patients per year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>23 23.7</td>
<td>0.128</td>
</tr>
<tr>
<td>10–20</td>
<td>30 30.9</td>
<td></td>
</tr>
<tr>
<td>&gt;20</td>
<td>44 45.4</td>
<td></td>
</tr>
</tbody>
</table>

* By Fisher exact test.

CNS = central nervous system.

table iii  Jurisdictional knowledge and overall choice to report, by jurisdiction (provinces with a legal requirement to report medically unfit drivers or with discretionary reporting)

<table>
<thead>
<tr>
<th>Question</th>
<th>Responses (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a legal obligation in your province to report a medical condition that may affect the ability to operate a motor vehicle safely?</td>
<td>Yes 92 6 3</td>
<td></td>
</tr>
<tr>
<td>Law</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discretionary</td>
<td>21 42 38</td>
<td></td>
</tr>
<tr>
<td>Do you consider reporting patients with a newly diagnosed brain tumour to your provincial driving licensing authority?</td>
<td>78 23 0</td>
<td></td>
</tr>
</tbody>
</table>
It is important to recognize the difference between criteria for eligibility to hold a license to operate a motor vehicle and the medical need to evaluate a patient’s symptoms in the context of driving. The Canadian Council of Motor Transport Administrators 20 determines medical standards for provincial and territorial motor vehicle licensing admissibility and maintenance standards, but those standards do not necessarily apply to a particular brain tumour patient’s situation. Despite documents such as the Canadian Medical Association’s driver’s guide, consensus and consistency on how brain tumour patients should be best managed remains lacking when it comes to assessment for medical fitness to drive. We therefore contend that it is imperative that clear, comprehensive, and objective guidelines be developed to help clinicians in the assessment of brain cancer patients for the operation of motor vehicles in Canada. The guidelines should be evidence-based, but to our knowledge, little research has evaluated the impact of brain tumours on driving.

5. CONCLUSIONS

We propose the formation of a multidisciplinary working group, similar to the Canadian Cardiovascular Society Consensus Conference for the Assessment of the Cardiac Patient for Fitness to Drive and Fly21 to assist physicians in balancing the competing responsibilities of patient advocacy and community safety. Surveys of other physician specialties about their understanding with respect to reporting obligations and accountabilities in this area would be essential in formulating such guidelines.

More transparency in the disclosure of driving restriction reporting (that is, a secure online database through the provincial or territorial transportation authorities, accessible by physicians) would also be of assistance in ensuring that physicians caring for individual patients are aware whether a driving restriction has been submitted so that the issue isn’t overlooked when multiple providers are caring for such patients.

6. ACKNOWLEDGMENT

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7. CONFLICT OF INTEREST DISCLOSURES

There are no possible conflicts of interest, sources of financial support, corporate involvement or patent holdings relating to the present work.

8. REFERENCES


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