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Driving and arrhythmias

The crux of medical fitness to drive is the risk of incapacitating arrhythmias

The freedom that driving a car gives the individual is a highly regarded privilege, some would say a right. Yet it is an inherently dangerous activity associated with significant mortality and morbidity, leading to 3500 deaths and 40 000 serious injuries from road traffic accidents in the United Kingdom each year.[1] This appears to be acceptable as a reasonable price to pay for the lifestyles and employment practices we choose. Society makes a judgment balancing risk and reward arising from any individual's activity that encroaches on others' lives. This risk analysis leads to legislation—on compulsory ability testing, adherence to the highway code, and medical fitness to drive.

In the United Kingdom, as in much of Europe and North America, there is a two-tiered approach to medical fitness to drive. Those who drive heavy goods or public service vehicles must conform to stricter requirements than those who drive small vehicles. This is sensible as the danger to others relates not only to the likelihood of incapacitation but also to the time spent driving and the potential for lives to be lost in the event of an accident, factors that are clearly greater with vocational driving.[2] The current licensing authority medical standards of fitness to drive relating to cardiac disease for non-vocational drivers consider conditions that may impair driving—arrhythmias, coronary disease, and structural heart disease.[3]

Those who suffer from angina can drive provided they have no symptoms at rest or while driving, but when even the gentlest road rage provokes chest pain at the wheel, drivers should desist until medication or intervention fully controls symptoms. Driving is prohibited for a week after percutaneous coronary intervention and for four weeks after surgical revascularisation. A diagnosis of myocardial infarction also disqualifies for four weeks, so the current trend towards a troponin based definition of myocardial infarction has far reaching repercussions.[4]

Most structural heart disease may impair ability to drive only if it leads to an arrhythmia or syncope. Hence hypertrophic, dilated, and arrhythmogenic right ventricular cardiomyopathies are acceptable in the absence of such consequences. Similarly, those with diseased valves, heart transplants, or congenital heart disease are unrestricted. In heart failure, provided symptoms are not severe enough to distract the driver's attention, any degree of left ventricular dysfunction is allowable. Chance findings of electrocardiographic abnormality, such as Q-wave myocardial infarction, left bundle branch block and pre-excitation, require elucidation only if there are symptoms of concern.

The crux of medical fitness to drive is the risk of syncope or pre-syncope due to incapacitating brady or tachy arrhythmias, and the rules are the same for all such rhythms, including sinus node disease, atrioventricular block, atrial flutter with or without fibrillation and both narrow and broad complex tachycardias. The onus is on the physician to decide whether the arrhythmia is likely to cause incapacity to drive. If so the underlying cause must be identified and entirely controlled for four weeks before driving can recommence.

One off interventions with a very high efficacy for rhythm control, including catheter ablation of accessory pathways and permanent pacing, require only a week's grace after the procedure before relicensing. These interactions are proactive, preventing the initiation of serious arrhythmias. Ongoing device therapy with implantable cardioverter defibrillators is more complicated because it is reactive. Implantable cardioverter defibrillators cannot prevent the arrhythmia from occurring, merely attempt to stop it after as few symptoms as possible and before it becomes lethal. Antitachycardia overdrive pacing and shock therapy have the potential to either terminate or aggravate the arrhythmia. Hence this group of patients, largely made up of survivors of sudden cardiac death and those with ventricular tachycardia, have the same risk of arrhythmia as before the implantation of their device.

The United Kingdom was the first country to formulate specific driving regulations for those with implantable cardioverter defibrillators and these have evolved rapidly over the last six years as the natural history of these patients is revealed.[5,6] With a rapidly expanding cohort of patients displaying evidence based indications for implantable cardioverter defibrillators the exponential rise in implants is likely to continue. Where there have been symptoms of an arrhythmia, driving is prohibited for six months following implantation of defibrillators. Delivered therapy within this time restarts the wait. Any change in the defibrillator's programme or antiarrhythmic medication requires abstinence for a month, and the defibrillator must remain under regular review. There is a five year moratorium after any incapacitating event, induced either by rhythm or therapy, unless a physician can state that the cause of such events has been identified and controlled. Interestingly, a recent attempt to quantify the risk of third party injury from patients treated for ventricular arrhythmia[7] showed that although symp-

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toms while driving are not uncommon,[8] the chance of an accident is small and the risk of fatalities trivial.[9]

Asymptomatic individuals considered at high risk of significant arrhythmia fitted with prophylactic implantable cardioverter defibrillators can drive from one month after placement of the device, provided no tachycardia induced therapy is delivered. The results of the second multicentre automatic implantable defibrillator trial[10 11] are likely to widen indications for prophylactic use of implantable cardioverter defibrillators in patients with coronary artery disease and left ventricular dysfunction for primary prevention of sudden cardiac death.[12]

Cardiologists and general physicians may be fortunate enough to care for patients with obvious diagnoses of arrhythmia, rendering interpretation of fitness to drive guidelines self evident. However, most patients present with a nebulous history of palpitation, pre-syncope or syncope. Eventually half of all recurrent syncope reveals itself to be cardiac in origin, yet it is this group of patients in whom fitness to drive issues are most likely to be circumvented. Application of the licensing authority's approach to unexplained loss of consciousness is therefore mandatory in this context.[3]

Although the prime responsibility for informing the authorities lies with the patient, physicians have a duty of care to society that overrides right to confidentiality when the patient cannot or will not conform. Guidelines exist for ethically sensitive but robust management of such circumstances.[3] The patient must understand their legal obligation to inform the authority. If all reasonable efforts fail then physicians should inform the patient's next of kin, or if necessary disclose the information to the driving authority. Ultimate responsibility lies with the physician who knows the diagnosis—a discipline of governance not widely understood or agreed.

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Promoting evidence based practice in maternal care

Would keep the knife away

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In maternal health care there is a recognised gap between evidence of effectiveness and clinical practice. Indeed, too often routine care is not evidence based and there is strong resistance to stopping harmful or useless procedures.[1] Unnecessary caesarean section and episiotomy are good examples of the mismatch between evidence and practice and of the complexities that change entails, as two articles in this issue illustrate.[2 3]

Unnecessary caesarean section is known to increase health risks for both mother and newborn child and adds burdens to healthcare budgets. There has been a sustained growth in caesarean section rates worldwide that has reached epidemic proportions in Latin America. A combination of factors contributes to this trend: providers' views on the safety of caesarean section,[4] obstetricians' convenience,[5] and the configuration of healthcare systems.[6] A fourth element is patients' demand for surgical delivery, a hotly debated issue, especially in Brazil.

Contrary to anecdotal evidence that portrays Brazil as a place where women demand caesarean section, two recent articles show that providers, rather than patients, use women's alleged preference as an excuse to follow their inclinations.[7 8] However, Béhague et al now contradict these data in a study conducted in the city of Pelotas, southern Brazil (p 942). They show that women (predominantly the socially marginalised) actively seek a caesarean section as a strategy to pre-empt hospitals' poor labour care, including lack of pain control.[2]

The methods used by the authors of this paper are strong, combining epidemiological and ethnographic approaches within a large sample. However, unlike previous research, this study was conducted in only one city, which may result in less external validity. This is particularly relevant considering the geographical differences in caesarean section rates across Brazil.[7] Replication of these results in other places is necessary to further the debate, in the context of a broader controversy over the role of maternal choice in delivery method.

Informed choice is central to good quality care. Unfortunately, mothers' decisions on obstetric procedures are too often anything but true exercises of free will: women receive incomplete information, they voice

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