Noncompliance in randomized controlled trials

Catherine Hewitt and colleagues[1] have given an excellent brief account of the effect of noncompliance on the analysis of randomized controlled trials. We would like to add a few more points to make the discussion more complete.

Noncompliance can seriously decrease study power,[2] resulting in widely varying estimates of the sample size required for a study.[3] Noncompliance is thus a significant issue to be considered when planning trials involving long-term therapies. Moreover, the analysis of results for patients receiving treatment can be biased in situations in which participants decline treatment because they cannot afford to pay for their drugs, if they are not provided free of charge.[4] Incorporation of patient preferences into the randomization process will also bias the results.[5] With these practical issues in mind, it would be an interesting exercise to compare the results of well-designed observational studies with those of randomized controlled trials.

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Novice drivers with attention-deficit hyperactivity disorder

The recent *CMAJ* lead editorial on the high rate of injuries and deaths among youthful drivers is long overdue.[1] It focuses our attention on potentially modifiable human factors in this important public health epidemic.[2] The latest edition of the CMA driver's guide includes changes concerning the safety of drivers with attention-deficit hyperactivity disorder (ADHD).[2]

ADHD was first mentioned as a reportable condition in the previous edition of the handbook.[3] In the 2006 edition, physicians are advised to consider treating novice drivers with ADHD with long-acting stimulants, on the basis of a recent meta-analysis examining the effects of a variety of medications used to treat ADHD.[4] The conclusion from this meta-analysis was that young drivers with ADHD show a normalization of dysfunctional driving behaviours on a driving simulator and during on-the-road driving when they receive treatment with long-acting methylphenidate compared with treatment with other stimulants and nonstimulants.

To our knowledge this is the first time that clinical research has demonstrated that medications improve driving performance in a vulnerable psychiatric population. We applaud the CMA's decision to incorporate evidence-based findings in their new handbook; recommendations in previous editions were based on the consensus opinion of an expert panel. The new recommendation leads the way for the international public health community to reduce the risks associated with driving for youth with ADHD.

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Organ donation after cardiocirculatory death

The Canadian recommendations for organ donation after cardiocirculatory death advocate confirming the irreversibility of cardiocirculatory arrest by the absence of palpable pulses, blood pressure and respiration during a 5-minute period of continuous observation by at least 1 physician.[1] This criterion does not fulfill the prerequisite requirement of irreversibility for the determination of death.

First, autoresuscitation (the spontaneous return of circulatory and neurological function), also known as the Lazarus phenomenon, has been reported after more than 10 minutes of cardiac electric asystole in humans.[2] Second, the presence of electrocardiographic activity without blood pressure (i.e., pulseless electric activity or ventricular fibrillation) does not indicate irreversible cessation of mechanical cardiac activity.[3] Third, the applicability of criteria for organ donation after cardiocirculatory death becomes questionable when artificial circulatory and ventilatory support is resumed after death in order to maintain the viability of abdominal and thoracic organs in potential donors.[4,5] Extracorporeal circulatory support can lead to the return of neurological function in people who are neurologically intact before cardiac death.[6] Mechanical occlusion of coronary and cerebral circulation has been used to try to prevent reanimation during the organ procurement process, without substantial evidence for its effectiveness.[5]

The timing involved in cardiocirculatory criteria is arbitrary, and the use of such criteria alone to determine death without simultaneous total cessation of all activity in the donor's brain