Severe alcohol intoxication in adolescents

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Background
Alcohol consumption by adolescents continues to be an important health concern in Canada, where it is the most commonly used drug among early and late adolescent youth. In 2009, 32% of students in grades 7 to 9 in Canada and 73% of those in grades 10 to 12 reported drinking alcohol in the last 12 months, with an overall rate of 53% for grades 7 to 12. Among Canadian students 19% reported binge drinking in grades 7 to 9, and 58% of students in grades 10 to 12 reported doing so in 2009.

Alcohol use in adolescence is a risk factor for future drug and alcohol problems, and young people who drink before the age of 15 are four times more likely to become addicted to alcohol. Neurobiological and neurocognitive studies have demonstrated that the immaturity of the adolescent brain confers greater vulnerability to the toxic and addictive effects of alcohol, and imaging studies provide evidence for reduced hippocampal volumes and white matter abnormalities in the prefrontal cortex in individuals with adolescent-onset alcohol use disorders. Early alcohol use has been associated with greater sexual risk-taking (unprotected sex and multiple partners), unwanted sexual advances, poor school performance, abuse of other substances and delinquent behaviour.

In 2004, the Canadian Addiction Survey found that over a fifth of drinkers between 15 and 24 years of age experienced at least one harm (physical, social, legal) from their own drinking during the previous year. Particularly among young males, alcohol is associated with aggression and violence. Alcohol is also the primary contributor to motor vehicle accidents in adolescents.
Presently, data around the incidence of severe alcohol intoxication in Canadian adolescents is lacking. Epidemiological data regarding the extent of the problem with alcohol intoxication among adolescents in Canada is crucial to promoting awareness and education around this important public health problem. From a public health perspective, prevention of heavy alcohol use among adolescents is essential, and surveillance of adolescents with severe intoxication has the potential to assist public health in focusing efforts on populations most at risk. This study may also have the potential to influence legislation regulating availability through access, pricing and promotion as well as minimum drinking age laws.

Methods

Through the established methodology of the CPSP, over 2,500 paediatricians and paediatric subspecialists will be actively surveyed on a monthly basis for identified cases of severe alcohol intoxication requiring prolonged emergency room/short stay observation (> 6 hours) or hospital admission. A detailed questionnaire will then be completed for each new case.

Objectives

1) Ascertain the incidence of severe intoxication among Canadian young adolescents presenting to the hospital for emergency room observation and/or hospital admission.
2) Describe the demographics, co-ingestions, co-morbidities and short-term outcomes of these patients.
3) Raise awareness among the medical community and the public.
4) Supply data that will help facilitate harm reduction strategies.

Case definition

Report any adolescent who meets the following criteria:
- Between 11 and 15 years of age, inclusively
- Blood alcohol level > 0 g/L (if available)
- Presenting with severe intoxication with impaired consciousness requiring prolonged ER observation (≥ 6 hours) or hospital admission.

Duration

March 2013 to February 2015

Expected number of cases

There is no incidence data available in Canada as this time. Recently published incidence of severe intoxication of adolescents in Netherlands from a similar Dutch surveillance study (including adolescents up to age 18) had 500 and 680 cases per year over their two-year study. Canada has a higher population of adolescents at this age, but lower binge drinking rates; therefore, our estimated incidence for this study among adolescents 11 to 15 years of age inclusively is approximately 250–300 cases per year.

Ethical approval

Queen’s University Health Sciences Research Ethics Board and Health Canada and Public Health Agency of Canada’s Research Ethics Board have granted ethical approval to this study.
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Analysis and publication

An interim analysis of data collected will be completed annually. Upon completion of the study, a manuscript will be submitted for publication in appropriate peer-reviewed journals. Dissemination of completed study results will be presented at national and international conferences.

References