CNS drug effect profiling in adolescents: an educational class experiment using alcohol as a model.

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- To educate adolescents about clinical drug studies by involving them as project team members and participants in a class experiment with negligible risk and minimal burden;- To educate adolescents about the effects of a low (*social*) dose of...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON34604

Source
ToetsingOnline

Brief title
Alcohol challenge in adolescents.

Condition

- Other condition

Synonym
N/A

Health condition

use of substances

Research involving
Human

Sponsors and support

Primary sponsor: Centre for Human Drug Research
Source(s) of monetary or material Support: Internal CHDR study.

Intervention

Keyword: Adolescents, Alcohol, CNS, Effect

Outcome measures

Primary outcome

Pharmacodynamics:

* Results of neurocognitive and psychomotor test (including adaptive tracking,

smooth eye pursuit, saccadic eye momevent, choice reaction task, body sway, and

visual verbal learning test)

* Results of visual analogue scales (Bond & Lader, alcohol effect)

* Autonomic nervous system parameters (including heart rate and blood pressure)

*Pharmacokinetics:

* Alcohol concentrations in breath

Secondary outcome

Results of a short questionnaire on subject*s view on alcohol

* Results of a short questionnaire on study participation

Study description

Background summary

Children and adolescents are increasingly involved in clinical drug trials because of the intensification of pediatric drug research following the adoption and implementation of the EU pediatric regulation. Therefore, there is a need to educate them about the need for and procedures involving clinical drug trials in children. Ultimately, children and adolescents learn most about

these issues by being involved themselves at several levels/phases of this type of research, from being participants to being project team members. The proposed study will therefore be conducted as an educational class experiment (as part of the Pre University College Program) on the effects of ethanol, an approach that was successfully followed in a previous educational class experiment investigating the psychostimulant effects of caffeine (CHDR0918, data on file). Given the high prevalence of use and alcohol-associated problems during adolescence, it is important that additional research is done to better understand the effects of alcohol during this developmental period. Clinical studies on the acute effects of alcohol have primarily been done in adult student populations. Animal models have shown clear differences between adolescents and adults on many aspects of ethanol exposure, including motor and memory impairments and it is therefore conceivable that effects in adults can not be merely translated to younger subjects. As a consequence, the effects of alcohol at certain blood concentrations are well known in adults but not in children and there are no data on the time course of acute effects of ethanol in adolescents.

Study objective

- To educate adolescents about clinical drug studies by involving them as project team members and participants in a class experiment with negligible risk and minimal burden;
- To educate adolescents about the effects of a low (*social*) dose of alcohol;
- To investigate the CNS effects of ethanol on neurocognitive and psychomotor functioning in adolescents;
- To investigate the effects of ethanol on the autonomic nervous system in adolescents;
- To describe ethanol breath concentrations;
- To describe the PK/PD relationship using the obtained breath concentrations and the effects that were investigated;
- To evaluate the applicability of the Neurocart test battery in adolescents, including evaluation how adolescents have experienced trial participation.

Study design

Randomized, placebo-controlled, double-blind cross-over study with a wash-out period of at least 3 days between occasions.

Intervention

Alcohol challenge will be done with a two oral doses of approx. 10 grams alcohol each (e.g., two standard glasses of 200 mL containing Malibu mixed with orange juice); (2) placebo (same total volume orange juice without alcohol but with coconut milk).

Study burden and risks

Non-therapeutic research in minors is only permitted if the imposed risks are negligible, the imposed burden is minimal and if the study objectives cannot be met by performing the study in legally competent adults (*group relatedness*). A detailed overview of study related activities will therefore be given in relation to these aspects.

1 Risks
Alcohol has a few unwanted side effects. However, it is expected that these will not occur at the low dose that will be administered during this study. Subjects with previously experienced serious adverse events due to alcohol use will be excluded. All measurements are without imposing risks on the volunteer. Therefore, the risk related to participating in this study is considered to be minimal.

2 Burden
Adolescents participating in this trial will be asked to come to CHDR for two measurement days each lasting approximately 8 hours. To prevent unnecessary school absence, these measurement days will be planned on weekend days, during holiday periods or on days that are considered to be suitable by the parents, school and the adolescent.
At each measurement day the participants will be requested to complete ten 11 measurement sessions of approximately 20 min. Subjects will be fully occupied with study-related activities for approximately 2.5 hours after alcohol intake. Thereafter, time between sessions can be spent with the other volunteers and/or parents in a room, where entertainment like game consoles, DVD player and computers with internet access is available. Staff experienced in working with adolescents will be present to supervise and entertain the volunteers. Food and beverages will be provided at regular intervals.
The duration of study days is comparable to the duration of a day in school. Additionally, all measurements are non-invasive. A similar data-intensive study with caffeine in the same age group was well tolerated and evaluated positively by all subjects. Therefore, although intensive, this study is considered below the threshold of minimal burden.
When a volunteer displays resistance against any study related activity, the *Gedragscode verzet minderjarigen* (Code of conduct in case of resistance in minors) will be followed.

3 Group relatedness
Results of this study in an adult population can only be partly extrapolated to adolescents, since results on neurocognitive tasks can be expected to develop with age, with maturation of cognitive processes continuing well into the adolescent years, reflected in differences between prepubertal, pubertal and postpubertal subjects in several neuropsychological task performances. In addition, developmental changes may influence the pharmacokinetics and/or

pharmacodynamcis of alcohol. It has been demonstrated that ethanol, both acute and chronic, produces effects that are age dependent in animals. This is supported by findings in clinical practice, as adolescents appear to have a higher risk at alcohol intoxication when exposed to large quantities of alcohol compared to adults. Also, habitual alcohol use, which becomes more prevalent with age, has an effect on ethanol pharmacokinetics and pharmacodynamics. The study objectives thus cannot be met by performing the study in legally competent adults. Moreover, the results are highly relevant for the adolescent age group, since alcohol use is very common in adolescents, and considered socially quite acceptable if limited.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Written informed consent from parents having parental responsibility or legal guardian (if subject < 18 years);
Written informed consent from subject;
Aged 16-18 (extremes included);
Attending high school on VWO level;
Able to communicate with investigator in Dutch;
Acquainted with effects of alcohol (e.g., use of at least 4 units during the month preceding study participation)

Exclusion criteria

Any significant medical condition that in the opinion of the medical investigator would be a contraindication for the use of alcohol and/or would interfere with the study objectives;
Regular alcohol use exceeding an average of more than one unit daily (by medical history);
Inability to abstain from alcohol for more than 3 consecutive days prior to study days;
Previously experienced serious adverse event after drinking maximum of 2 drinks per occasion (by medical history);
Daily use of more than 5 cigarettes (or other nicotine(-containing) equivalent);
Regular use of illicit drugs (including cannabis); cannabis use exceeding more than 1 intake weekly is considered an exclusion criterion (by medical history);
Daily use of more than 5 units of xanthine-containing food products or drinks (including but not limited to coffee, tea, energy drinks, chocolate);
Distaste of orange juice.

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	21-12-2010
Enrollment:	16
Type:	Actual

Ethics review

Approved WMO

Date:	21-12-2010
Application type:	First submission
Review commission:	CCMO: Centrale Commissie Mensgebonden Onderzoek (Den Haag)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL34842.000.10