

NGED Health Priority Research Summit: Alcohol on Fetal Development

Meeting: March 2008

Policy Statement

The first NGED Alcohol Research Summit meeting was held on Thursday 13th March from 10:30 – 14:00 at the Hilton Melbourne Airport Hotel.

Present: Rob Richards, Marina Delpin, Paul Colditz, Richard Harding, Ruth Morley, Elizabeth Elliott, Karen Moritz, Emma Whitelaw, Kelly Crossley (on behalf of Stuart Hooper), John Bertram, David Walker, Colleen O’Leary, Euan Wallace, Jane Halliday, Mary Wlodek

An aim of this meeting was to formulate a policy statement based on the research needs and key research questions discussed and identified by participants.

Four key areas have been identified:

(i) DIAGNOSIS

Currently diagnosis in humans appears to be subjective. There is a place for the introduction of biochemical assays or identification of biomarker(s) for FAS.

- Biomarkers – what could these be?

Identification of a biomarker(s) to identify the effect and level of exposure (Halliday; Walker)

Can methylation state be used as a biomarker in both humans & animals? (Whitelaw)

- Quantifiable assay maybe empirical (rather than rational)

- “Chemical pathology” approaches could be used to identify potential biomarkers

(ii) LONGITUDINAL STUDY

Participants at the meeting strongly recommended and advised of the need for a national approach and national “register”.

Need a consensus on data collection methods (Morley)

Highly desirable to have a singular NHMRC supported study.

A major outcome of this meeting is to formulate a proposal for the funding of such a study to the NH&MRC, acknowledging that some work is already underway to do this (Halliday).

(iii) POPULATION STUDIES

- to be combined with the longitudinal study detailed above.

Population biology and epidemiology.

Several approaches are required to achieve the following aim: *To be able to advise women on the impact of their drinking based on research evidence (outcomes & health consequences; O’Leary)*

O’Leary: cohort data (’95- ’97) evaluating impact of low to moderate alcohol intake and timing of exposure on fetus due to the need to identify a safe level of drinking. No impact of low

levels of alcohol was found on childrens' language development (cf abstinent group) when exposed to low levels of EtoH (paper is in review).

There is a need to focus on the outcomes of low to moderate drinking – would aid in policy development & aid clinicians (O'Leary)

1) Prospective cohort study (longitudinal) – *see above (ii)* and need to incorporate accurate measures of potential confounders/effect modifiers for alcohol effects such as nutrition, BMI, family history, length of time drinking etc.

There is a current assumption that FAS or FASD affected children's mothers were heavily drinking, however there are differing alcohol sensitivities amongst women.

2) Important to get a better understanding of clinician & pregnant womens' views on drinking during pregnancy.

(iv) ANIMAL MODELS

There is clear need for additional work with animal models for testing the effects of alcohol, particularly for establishing "dose responses" of various consequences to alcohol.

Is dietary intervention possible to reduce the effects? Eg. cholesterol

Use of animal models (& expts) to confirm observations of the effects seen in humans. Eg. aortic stiffness – Morley has observed this in humans -> Harding confirmed this in sheep.

It is important to establish

- Set parameters across studies looking at the same affected organs (Bertram; design, dose, timing of dose, timing of outcome analyses, age of fetus)
- what base-line level of alcohol exposure causes an effect.

Ideal if there is a coordinated effort and sharing of tissues from one animal amongst different researchers who have expertise in that organ's analysis/development. This is likely to occur with the commencement of Karen Moritz's project in 2008; "Effects of alcohol on the developing fetal kidney", which aims to investigate (i) effects of moderate prenatal alcohol exposure & (ii) acute ethanol exposure on blood pressure & renal/kidney function.

There is no evidence yet of low ethanol intake leading to FAS/FASD in humans. Question: what is the safe low level of alcohol consumption (Wallace)

There is high value in use of animal research as an example to the public about the effects of ethanol (Harding)

Need to use models that reflect dinking styles & trends of women (Wallace)

Consideration: pharmaco-genetic variations in mothers – not all women have the same sensitivity to drinking alcohol.

How NGED can contribute:

1. A major outcome of this meeting is to bring together key researchers to formulate a proposal for the funding of a longitudinal study to the NH&MRC.
2. An advisory committee coordinated by NGED could give a formal 'stamp of approval' to models proposed for grants investigating alcohol & its effects.
3. NGED could sponsor a website which is a central register of relevant publications regarding animal models for FAS research.
4. NGED can facilitate an integrated approach to basic research (which is critically required; Bertram). Joint meeting with National Monash Alcohol Meeting (Nov 2008).
5. Second FAS summit? In conjunction with the National Monash Alcohol Meeting (Vic) and/or the Intergovernmental Committee on Drugs (IGCD; WA) which has a working party dealing with the issue of alcohol and pregnancy/fetal alcohol spectrum disorders.