

Invited Editorial

Alcohol and pregnancy: The pivotal role of the obstetrician

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New draft alcohol guidelines for Australia state that, for pregnant women and women planning pregnancy, 'no drinking is the safest option'. One of the best known adverse effects of alcohol exposure on the fetus is the fetal alcohol syndrome. Others include alcohol-related birth defects, alcohol-related neurodevelopmental disorders and increased risks of miscarriage, stillbirth, intrauterine growth restriction, preterm birth and low birthweight. Over half of Australian women consume alcohol during pregnancy. Obstetricians have a pivotal role in advising women of the effects of alcohol on the fetus and reducing fetal exposure.

Key words: alcohol guidelines, alcohol in pregnancy, fetal alcohol syndrome.

In November 2007, the National Health and Medical Research Council released, for public comment, revised draft alcohol guidelines for Australia (<http://www.nhmrc.gov.au/consult/index.htm#alcohol>). Guideline 3, which refers to pregnant women and women planning pregnancy, states that 'not drinking is the safest option'. The stated rationale behind this guideline is that alcohol is a known teratogen. Although evidence for the degree of risk of harm associated with low levels of drinking in pregnancy is inconclusive, the precautionary principle can be applied to alcohol, as to any other teratogen. For example, when applying this principle to pharmaceutical and other agents (for example tetracyclines, paroxetine) that have shown teratogenicity to the developing fetus, the advice is to avoid use of these substances during pregnancy if at all possible.

Increased risks of miscarriage, stillbirth, intrauterine growth restriction, preterm birth and low birthweight have been reported in association with alcohol consumption (usually in large amounts) during

pregnancy. Although pregnancy outcomes are not invariably poor in studies examining low–moderate alcohol intakes, many such studies, identified through systematic literature reviews, have major methodological weaknesses and, in the absence of better data, it is not possible to conclude that drinking at low levels in pregnancy is safe, or to identify a safe lower level of intake.¹

One of the best documented and most severe adverse effects of alcohol exposure on the fetus is the fetal alcohol syndrome (FAS). FAS can be diagnosed in the presence of a triad of features: poor prenatal and/or postnatal growth; characteristic facial anomalies; and structural and/or functional abnormalities of the central nervous system in a child, with either confirmed or unknown exposure to alcohol during pregnancy (Table 1). FAS is also associated with a range of birth defects and with ongoing educational, behavioural and psychosocial problems.²

Less well known are the more frequent, but often less obvious, effects of fetal alcohol exposure that, along with FAS, are included under the rubric of fetal alcohol spectrum disorder (FASD).³ These include alcohol-related birth defects (ARBD) and alcohol-related neurodevelopmental disorders (ARND). ARBD can be diagnosed in a child with confirmed alcohol exposure; one or more birth defects (such as cardiac, renal, musculoskeletal, sensorineural hearing loss, and visual impairment); and two or more of the facial

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Table 1 Diagnostic features of fetal alcohol syndrome

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- Confirmed or unknown alcohol exposure during pregnancy
 - Growth restriction
 - Prenatal and/or postnatal height and/or weight \leq 10th percentile
 - Facial features
 - Smooth philtrum
 - Thin vermilion border
 - Small palpebral fissures
 - Abnormalities of the central nervous system
 - Structural
 - Head circumference \leq 10th percentile
 - Structural brain abnormality on imaging
 - Functional
 - Performance below the individual's age
 - Poor executive functioning
 - Behavioural or emotional problems,
 - Difficulties with memory, learning
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features of FAS. A diagnosis of ARND requires confirmation of alcohol exposure; structural brain abnormalities similar to those seen in FAS; and a range of behavioural, cognitive, developmental and language deficits. It is difficult to predict the risk for the individual fetus and maternal age, nutrition, socioeconomic status, and the genetics of both mother and child may influence the likelihood of a fetus being affected by alcohol exposure during pregnancy.⁴

FAS can be missed at birth. In a national study conducted through the Australian Paediatric Surveillance Unit, the median age at diagnosis of FAS was 3.3 years and only 6.5% were diagnosed at birth.⁵ In the Queensland study reported in this issue of the Journal, only 3% of cases were diagnosed at birth. It is likely that many affected children with FAS, ARBD and ARND will never receive a diagnosis. Recognition by the health professional of the potential for alcohol exposure during pregnancy, is an important first step to identifying the child at risk and referring that child for paediatric assessment.

Australian women in general are drinking more alcohol and are consuming alcohol in more harmful ways than in the past. In 2004–2005, 30% of adult women reported consuming five or more 'standard' alcoholic drinks (one standard drink is 10 g pure alcohol) on at least one occasion in the previous year and 4% drank this much at least once a week over the previous year. The proportion of younger women

(18–24 years) drinking at this level at least once a week was 11%.⁶ Recently published Australian data on consumption specifically relating to pregnancy showed that 79.8% of women drank alcohol and 14% of women reported drinking five or more standard drinks on a typical occasion in the three months before pregnancy, and 58.7% drank alcohol during pregnancy.⁷ In the first trimester, 14.8% of women exceeded the previous, more liberal, National Health and Medical Research Council (NHMRC) Guideline⁸ by having seven or more standard drinks a week or, on a typical occasion, having more than two standard drinks. These high rates of drinking, combined with the fact that almost half of all pregnancies are unplanned,⁷ suggest that many fetuses are likely to be inadvertently exposed. Although birth defects may be prevented by avoiding alcohol during the first trimester, fetal growth and neurological development continue throughout pregnancy and thus benefits to the fetus (and the mother) are likely to result from avoiding exposure to alcohol later in pregnancy.

So what do obstetricians advise? In a survey of obstetricians in Western Australia (WA) conducted in 2002–2003, 57.1% of respondents reported that they advised pregnant women to consider not drinking at all, most obstetricians (73.0%) felt that it was easy to ask pregnant women about their alcohol consumption and only a small percentage (9.5%) thought that discussing alcohol use in pregnancy will frighten or anger pregnant women.⁹ Nevertheless, almost half the obstetricians (42.9%) said that they did not routinely ask about alcohol in pregnancy, only 4.8% gave advice that was entirely consistent with the NHMRC guideline of the time⁸ and few (15.9%) routinely provided information about the consequences of alcohol in pregnancy. The latter finding may reflect lack of knowledge. Only 17.5% of obstetricians surveyed could identify the diagnostic features of FAS, 57.1% thought they were not sufficiently aware of FAS, and over 60% stated that resources for health professionals and for patients would help diagnose and prevent FAS.

Failure to provide information about alcohol in the antenatal consultation represents a lost opportunity. Firstly, women expect their doctors to inform and advise them of such matters. In a 2006 national survey of over 1100 women of child-bearing age, 96.9% of respondents agreed that health professionals should advise women how many standard drinks are safe to drink during pregnancy; 96.9% agreed that health professionals should ask pregnant women about how much and how often they drink alcohol;

Table 2 A Guide for health professionals in addressing alcohol use in pregnancy¹⁰

ASK all women of child-bearing age and pregnant women about their alcohol use. An effective way to ascertain consumption is to use a screening tool such as AUDIT¹¹

ASSESS the level of risk of the woman's alcohol use

ADVISE women

- That no alcohol is the safest choice if a woman is pregnant or trying to get pregnant
- That the amount of alcohol that is safe for the fetus has not been determined
- That alcohol reaches concentrations in the fetus that are as high as those in the mother
- Of the consequences of alcohol exposure to the fetus

Women who have consumed alcohol should be advised that

- The level of risk to the fetus is hard to predict
- Stopping drinking at any time in the pregnancy will reduce the risks to the fetus
- The risk of harm to the fetus is low if only small amounts of alcohol were consumed before they knew they were pregnant
- Any concerns about the child's development should be raised with a health professional

ASSIST women to stop or reduce consumption through

- Positive reinforcement for those already abstaining
- Advising on the consequences of alcohol exposure to the fetus
- Conducting brief intervention or motivational interviewing with the aim of supporting them to abstain and, where this is not possible, to reduce alcohol intake and avoid intoxication

ARRANGE for further support for women by planning additional consultations or by referral to specialist services and support groups

and 90.7% agreed that health professionals should advise women who are pregnant or who are thinking of becoming pregnant to give up drinking alcohol (Elizabeth Peadar, unpubl. data, 2008). Furthermore, in the WA survey of health professionals,⁹ 40% of obstetricians stated that fewer than 5% of their patients ask them about the risks of alcohol, suggesting that this issue needs to be initiated by the health professional. Secondly, accurate recording of antenatal alcohol exposure will help identify children who require follow up for developmental assessment, since the effects of alcohol may not be obvious in the neonatal period. Thirdly, accurate records of alcohol intake will assist the clinician evaluating an older child with developmental delay. Finally, identifying women who are unable or unwilling to stop drinking provides an

important opening for further discussion (and, if necessary, referral) for management of problem drinking and prevention of exposure to alcohol in future pregnancies. A booklet titled *Alcohol and Pregnancy: Health Professionals Making a Difference* is available for downloading free of charge¹⁰ and a summary of the guide published in the booklet to assist health professionals in addressing alcohol use in pregnancy is provided in Table 2.

In the Australian Paediatric Surveillance Unit study, 51% of children with FAS had a similarly affected sibling,⁵ suggesting that we had missed opportunities to prevent this devastating disorder. The issue of causing maternal guilt in women who may have consumed alcohol during their pregnancy is often raised as a reason to withhold information about potential adverse effects. Women with affected children would disagree with this approach. The causal pathway to FASD is complex and prevention of the effects on the fetus of alcohol intake during pregnancy will require collaboration across health, community and education sectors.¹² However at the individual level, education is the key to prevention. In light of the changing drinking patterns in Australian women we all have a responsibility – obstetricians, paediatricians, general practitioners, other health professionals and departments of health – to provide accurate information to women about alcohol in pregnancy and its lifelong effects on the fetus and child.

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References

- 1 Henderson J, Gray R, Brocklehurst P. Systematic review of effects of low-moderate prenatal alcohol exposure on pregnancy outcome. *Br J Obstet Gynaecol* 2007; **114**: 243–252.
- 2 Bertrand J, Floyd LL, Weber MK. Guidelines for identifying and referring persons with fetal alcohol syndrome. *MMWR Recomm Rep* 2005; **54**: 1–14.
- 3 Hoyme HE, May PA, Kalberg WO *et al.* A practical clinical approach to diagnosis of fetal alcohol spectrum disorders: Clarification of the 1996 Institute of Medicine Criteria. *Pediatrics* 2005; **115**: 39–47.

- 4 O'Leary CM. Fetal alcohol syndrome: Diagnosis, epidemiology, and developmental outcomes. *J Paediatr Child Health* 2004; **40**: 2–7.
- 5 Elliott EJ, Payne JM, Morris A, Haan E, Bower C. Fetal alcohol syndrome: A prospective national surveillance study. *Arch Dis Child* 2007; doi:10.1136/adc.2007.120220.
- 6 Australian Bureau of Statistics. *Alcohol Consumption in Australia: A Snapshot, 2004–05*. Canberra, ACT: Australian Government, 2006.
- 7 Colvin L, Payne J, Parsons D, Kurinczuk JJ, Bower C. Alcohol consumption during pregnancy in non-indigenous West Australian women. *Alcohol Clin Exp Res* 2007; **31**: 276–284.
- 8 National Health and Medical Research Council. *Australian Alcohol Guidelines: Health Risks and Benefits*. Canberra, ACT: National Health and Medical Research Council, 2001.
- 9 Payne J, Elliott E, D'Antoine H *et al*. Health professionals' knowledge, practice and opinions about fetal alcohol syndrome and alcohol consumption in pregnancy. *Aust N Z J Public Health* 2005; **29**: 558–564.
- 10 Alcohol and Pregnancy Project. *Alcohol and Pregnancy: Health Professionals Making a Difference*. Perth, WA: Telethon Institute for Child Health Research, 2007. <http://www.ichr.uwa.edu.au/files/user9/Booklet.pdf>.
- 11 Saunders JB, Aasland OG, Babor JF, De la Fuente JR, Grant M. Development of the Alcohol Use Disorder Identification Test (AUDIT). WHO Collaborative Project on early detection of persons with harmful alcohol consumption – II. *Addiction* 1993; **88**: 791–804.
- 12 Elliott EJ, Bower C. FAS in Australia: Fact or fiction? *J Paediatr Child Health* 2004; **40**: 8–10.