

Current management of pre-eclampsia

Mark A Brown and Sandra A Lowe

Updated guidelines widen the definition of pre-eclampsia and highlight that hypertension in pregnancy has become a lifelong disorder

The “political” enthusiasm for women to have more babies will not come without a downside. Complications such as pre-eclampsia — a major cause of premature delivery — are likely to become more prevalent as increasing numbers of women become pregnant when they are older or obese, and may affect up to 5% of these women. The reason why pre-eclampsia develops is an enigma. Although there have been no recent major advances in the clinical treatment of this diverse disorder, maternal and fetal outcomes in Australia and New Zealand are good.¹ The big risk now is that obstetricians, physicians, general practitioners and midwives will become complacent about the management of these high-risk pregnancies.

The institution of standardised surveillance guidelines for Canadian women with pre-eclampsia has been associated with a reduction in adverse maternal outcomes (from 5.1% to 0.7%), but not perinatal outcomes.² For this reason, the updated Australian and New Zealand *Guidelines for the management of hypertensive disorders of pregnancy*,³ assuming they are adopted, should improve outcomes for women with hypertension in pregnancy. These guidelines, which were produced in 2008 by the Society of Obstetric Medicine of Australia and New Zealand (SOMANZ), highlight key aspects of these complex disorders. First, the traditional definition of pre-eclampsia — as only hypertension with proteinuria — fails to identify women who are at high risk by having other organ involvement (eg, hepatic, haematological or cerebral disease) without proteinuria.⁴ Second, a spot urine protein:creatinine ratio can be used to detect significant proteinuria, and 24-hourly urine collections are no longer necessary in routine clinical management.⁵ Third, although all women with pre-eclampsia should initially be admitted to hospital, many hospitals now have a day assessment unit where some patients with pre-eclampsia can be managed as outpatients — providing their initial assessment was as an inpatient.

The treatment of these disorders is “supportive”, and does not ameliorate placental abnormalities or alter the pathophysiological sequelae of pre-eclampsia. Treatment of hypertension in pregnancy does not cure pre-eclampsia; it is intended to prevent cerebral haemorrhage and eclampsia (seizures), and may delay proteinuria.⁶ SOMANZ recommends antihypertensive treatment be commenced promptly in all pregnant women with a systolic blood pressure of 170 mmHg or higher, or a diastolic blood pressure of 110 mmHg or higher. Several rapidly acting agents are suitable for controlling severe hypertension, including oral nifedipine, intravenous labetalol and intravenous hydralazine.⁷

Treatment of mild to moderate hypertension in the systolic blood pressure range of 140–160 mmHg or diastolic blood pressure range of 90–100 mmHg is more controversial; however, most hospitals in Australia and New Zealand do implement treatment at these levels. At higher levels, treatment is mandatory, and several drug treatments are safe and efficacious: methyldopa, labetalol and oxprenolol are first-line options, and hydralazine, nifedipine and prazosin are second-line options. Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers are contraindicated in pregnancy.

Pre-eclampsia and other hypertensive disorders of pregnancy: risks and recommendations

- Hypertensive disorders of pregnancy are a leading cause of perinatal and maternal morbidity and mortality, even in developed countries.
- Management according to systematic guidelines³ improves outcomes.
- Proteinuria is not mandatory for the clinical diagnosis of pre-eclampsia; renal, cerebral, clotting and hepatic dysfunction also indicate severe disease.
- Prompt treatment of severe hypertension (systolic blood pressure of 170 mmHg or higher, or a diastolic blood pressure of 110 mmHg or higher) or seizures is mandatory; however, debate persists regarding treatment of mild to moderate hypertension in pregnancy and the selection of patients for magnesium sulfate prophylaxis.
- Several risk factors for pre-eclampsia are recognised, but accurate prediction of women at risk of pre-eclampsia is still developing.
- Pre-eclampsia is associated with increased risk of recurrence in the next pregnancy and future risk of cardiovascular and renal morbidity.
- Women who experience hypertension in pregnancy should adopt a healthy lifestyle, even more so than women who have normotensive pregnancies. ◆

The drug of choice for the prevention and treatment of eclampsia is intravenous magnesium sulfate. However, eclampsia complicates only one in 200–300 cases of pre-eclampsia in Australia, and the case for its routine administration in women with pre-eclampsia in countries with low maternal and perinatal mortality rates is not compelling. SOMANZ recommends magnesium prophylaxis only for women considered at high risk of seizures.

Some preterm cases are managed expectantly in units that treat patients at high risk, but delivery remains the definitive management. Many women with pre-eclampsia deteriorate for a few days after delivery, and they require close monitoring during this phase. When there is intense pressure to discharge patients quickly, this is an important point to remember.

Women want to know their risk of developing recurrent pre-eclampsia or gestational hypertension, which is about 15% for each after pre-eclampsia in the index pregnancy.⁸ These rates are probably higher after early-onset pre-eclampsia. Low-dose aspirin and calcium supplementation have both been shown to reduce the risk of pre-eclampsia, and should be used in women at high risk of pre-eclampsia, such as those with a history of early-onset pre-eclampsia.

It is apparent that women with either pre-eclampsia or gestational hypertension are at increased risk of cardiovascular morbidity in subsequent years, including hypertension, stroke, coronary heart disease, venous thromboembolism and overall mortality.⁹ These associations could reflect a common cause for pre-eclampsia

and cardiovascular disease, or an effect of pre-eclampsia on vascular disease development, or both. A similar risk for later end-stage renal failure has been reported recently, however only 0.08% of women were affected.¹⁰ From a practical point of view, it is reasonable to counsel patients who develop hypertension in pregnancy that they will benefit from avoiding smoking, maintaining a healthy bodyweight, exercising regularly and eating a healthy diet. It is recommended that all women with previous pre-eclampsia or hypertension in pregnancy have an annual blood pressure check and regular (at least 5-yearly) assessment of other cardiovascular risk factors, including serum lipids and blood glucose. In other words, hypertension in pregnancy has become a lifelong disorder. Risks and practice recommendations for women with hypertensive disorders of pregnancy are summarised in the Box.

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Disproportionate burdens: the multidimensional impacts of climate change on the health of Indigenous Australians

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For Indigenous Australians, the “health of country” is inextricably linked with human health

The impacts of climate change on human health are now being documented in Australia.¹ Not surprisingly, these impacts are unequally distributed across our society, as vulnerability depends on a number of factors, including the degree of exposure, sensitivity and adaptive capacity. However, intra-national heterogeneity of climate impacts on health has not been adequately documented to date.² Using this lens, the vulnerability of Australia's Indigenous people living in remote areas of the country is revealed. Their vulnerability to climate change is intensified by the social and economic disadvantage they already experience — the result of factors that include decades of inadequate housing and public services, and culturally inappropriate medical services. In addition, specific cultural ties between Indigenous people's wellbeing and the “health” of their “country” create significant indirect impacts of climate change.^{3,4} We argue that it is vital to acknowledge the significance of this situation now, so that anticipatory adaptive policies can be implemented. Such policies should ensure that adequate resources are provided to mitigate some of the worst impacts of climate change on these communities, in a way that encourages community participation in decision making.

We now know that, across northern Australia, climate change is expected to bring hotter day- and night-time temperatures.⁵ Elevated temperatures and increases in hot spells are expected to be a

major problem for Indigenous health in remote areas, where cardiovascular and respiratory disease are more prevalent and there are many elderly people with inadequate facilities to cope with the increased heat stress. However, while the literature is not clear on the exact effects of increasing heat on people and communities, it does imply that these effects are likely to be less in regions where people are already acclimatised to hot conditions.

Communicable diseases such as bacterial diarrhoea, which are more common in hot, dry conditions, may increase in incidence unless additional preventive action is taken. One study predicted that a 1.0–3.5°C increase in average temperature by the year 2050 would lead to an estimated 5%–18% increase in diarrhoea cases in Alice Springs.⁶ Dengue fever, spread by mosquitoes, also presents a climate-related risk to Indigenous communities. Although the virus is not currently endemic in Australia, there are sporadic epidemics, with occasional cycles over winter in the local mosquito populations in northern Queensland.⁷

The conceptual divide between Indigenous and non-Indigenous Australians about perceptions of “health” also needs to be recognised and accommodated.⁸ The Indigenous concept of health is broad and multifaceted, reflecting a different world view to that of the Western biomedical model. For many Indigenous people, a connection with “country” — a place of ancestry, identity, language, livelihood and community — is a key determinant of health.⁹ If community-owned

country becomes “sick” through environmental degradation, climate impacts, or inability of the traditional owners to fulfil cultural obligations through ongoing management and habitation of their land, the people of that land will feel this “sickness” themselves. That is, the elements contributing to Indigenous health and wellbeing are often abstract and based on social interactions with people and the non-human landscape. Thus, as ecosystems change in response to biophysical impacts and extreme weather events, many traditional owners living in remote areas are likely to face increased physiological, psychological, economic and spiritual stress as it becomes more difficult to “look after their country”.

At both international and national levels, there is some recognition of the specific needs of indigenous people in relation to the impact of climate change. The World Health Organization’s Commission on Social Determinants of Health and the United Nations Permanent Forum on Indigenous Issues have recently acknowledged the importance of tackling climate change, particularly with respect to health, for the world’s 350 million indigenous people. In Australia, the Garnaut Climate Change Review has recognised the importance of some non-quantifiable costs, including the specific intangible costs associated with improving Indigenous health.¹⁰

A challenge for medical practitioners dealing with this issue in the Australian context will be to look beyond the limitations of traditional epidemiology and scientific reductionism to embrace a more ecologically focused, social-determinants approach to health.¹¹ This approach would enable the “health of country” and its inextricable links with human health to be considered in climate impact assessments.

To address these different paradigms of health, the first step is to begin discussions with Indigenous people to prioritise activities. This process will certainly require a significant increase in the capacity of medical professionals and health systems in northern Australia, as well as increased education and training programs for Indigenous trainees and cross-cultural programs for nurses and local Indigenous support staff. Changes also need to be made in teaching practice across Australia. Currently, Indigenous health still occupies a peripheral place in many medical school curricula, with government funding and research disproportionately supporting high-cost, acute-care medicine at the expense of preventive and primary health care.

In tandem with well planned, properly resourced programs that support strong livelihood activities in remote communities, there is the potential to begin to reduce the additional risk for many Indigenous communities from climate change. There are multiple co-benefits of this approach that would raise social and economic indicators. Ignoring the warning signs and failing to take action is no longer an option.

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