

Letters to the editor

OVERVIEW

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The differential diagnosis of pre-eclampsia should include the association of severe hypertension and aortic dissection

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Editor – When severe hypertension in pregnancy is defined as a sustained systolic blood pressure of ≥ 160 mmHg or a diastolic blood pressure of ≥ 110 mmHg, related disorders that should be considered include not only pre-eclampsia but also dissecting aortic aneurysm (DAA), a disorder sometimes misdiagnosed as pre-eclampsia when it presents with hypertension.^{1,2}

In one report, a 29-year-old primigravida woman presented at 37 weeks gestation with a blood pressure of 160/110 mmHg and a 24-hour urinary protein of 2,462 mg. She was given a diagnosis of severe eclampsia.² She received antihypertensive treatment and her baby was delivered by caesarean section. Six days later, she experienced severe back pain radiating to the chest, her blood pressure on that occasion was 190/100 mmHg. She was initially diagnosed with postpartum eclampsia in spite of persisting severe back pain and chest pain. Subsequent computed tomography with angiography showed type B aortic dissection. As a result of appropriate operative intervention, she made a complete recovery.

The association of severe hypertension and pregnancy-related DAA can also occur in the context of conventional risk factors for DAA (such as Marfan's syndrome), exemplified by a 24-year-old woman with clinical stigmata of Marfan's syndrome and a blood pressure of 174/110 mmHg during pregnancy.³ She had a fatal DAA postpartum. ■

Key points

- > The differential diagnosis of pre-eclampsia should include DAA whenever symptoms of DAA occur in a patient with a provisional diagnosis of pre-eclampsia. This differential diagnosis should prevail during pregnancy and also during the puerperium.
- > A pregnant woman with severe hypertension should also be evaluated for stigmata of Marfan's syndrome and for stigmata of coarctation of the aorta.

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Isolated headache is not a reliable indicator for brain cancer

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Editor – Readers of the paper by Dr Ceronie and colleagues may be a bit baffled by discussion of the National Institute for Health and Care Excellence (NICE) criteria for 2-week-wait (2WW) referrals for suspected CNS malignancy.¹ For these criteria, which essentially constitute a screening test, NICE deemed a positive predictive value (PPV) of at least 5% to be preferable and adopted a PPV threshold of 3%.

Surely any clinician proposing a new screening or diagnostic test whose performance in a test accuracy study produced a PPV of somewhere between 0.03 and 0.05 (ie a false discovery rate between 0.97 and 0.95) would be laughed out of court, or sent for remedial training, or more likely would conclude that this was a negative study and consign the said test to oblivion without publication.

The issue, of course, relates to the dependence of predictive values on disease prevalence, which is very low for brain cancer in 2WW cohorts. Stated another way, the prevalence of 'no cancer' is very high. As a consequence of the large number of disease negative patients in any study of these criteria, since headaches not due to brain cancer vastly outnumber those due to brain cancer, there is over-inflation of test metrics, such as false discovery rate and negative predictive value.

The problem of accounting for excess correct 'non-events' has been recognised since the 19th century, specifically in the context of predicting tornados.² To allow for this, various metrics that eschew true negatives have been developed, such as the critical success index (CSI) or threat score, and the related F measure.

$$CSI = 1/[(1/PPV) + (1/sensitivity) - 1]$$

$$F = 2/[1/sensitivity + 1/PPV]$$

$$F = 2CSI/(1 + CSI)$$

These metrics range from 0–1, and higher values are better. They have already been applied in the assessment of cognitive screening instruments for the diagnosis of dementia in low-frequency settings (neurology-led dementia clinics).³ We recommend that they are adopted for the assessment of any screening or diagnostic test where prevalence of the condition being sought is low, accepting that this policy may require a broadening of clinician literacy in order to understand the meaning of these metrics. ■

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- 3 Lerner AJ. Assessing cognitive screening instruments with the critical success index. *Prog Neurol Psychiatry* 2021;25:33–7.