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References

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Authors' Reply

Sir,

We thank Roberts et al. for their interest in our study[1,2] and for the opportunity to clarify that our study does not show 'that there is a net disadvantage to additional time in utero'. We presented the unadjusted results, which show that motor and mental Bayley scores <70, <85, and mean motor and mental Bayley scores were similar in the <3 weeks and ≥3 weeks groups. In the regression model we found that preterm prelabour rupture of membranes (PPROM) ≥3 weeks, neonatal sepsis, race and drug use were important risk factors for neurodevelopmental delay whereas greater gestational age at delivery and maternal education were protective factors. In our discussion we point out the difference in the unadjusted and adjusted models, which confirm that there are many contributing factors to the pathophysiology of neurodevelopmental delay, and these were not equally allocated among the groups.

There are well-established short-term and long-term benefits to expectant management in the setting of PPROM. In the interpretation, we point out that our results must be interpreted with caution, and that this study does not address the optimal timing of delivery in women with prolonged PPROM. Our results showed that gestational age at delivery was a protective factor against neurodevelopmental delay and this supports the current practice of expectant management to achieve a later gestational age at delivery. We did find that when adjusting for gestational age at delivery, those with longer PPROM time (and therefore earlier gestational age at PPROM) had a higher risk of neurodevelopmental delay. As pointed out in our interpretation, 'our findings support the importance of including neurodevelopmental outcomes in research studies of clinical strategies that extend expectant management for PPROM beyond 34 weeks of gestation.' ■

References

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Re: A comparison of the recommendations for pharmacologic thromboembolism prophylaxis after caesarean delivery from the major guidelines.

Impact on thromboprophylaxis rates of implementing Royal College of Obstetricians and Gynaecologists' guidance for reducing the risk of ante- and postnatal venous thromboembolism

Sir,

We read with interest the recent paper from Palmerola et al. comparing international recommendations for pharmacological thromboprophylaxis after caesarean section,[1] including those from the Royal College of Obstetricians and Gynaecologists (RCOG). They raise concerns about the wide variation between the guidelines and highlight the higher thromboprophylaxis rates in the UK, whilst acknowledging the reduced maternal mortality associated with venous thromboembolism (VTE) in the UK in recent years.[2] The RCOG VTE prevention guidance was updated in 2015,[3] and the impact on thromboprophylaxis rates is as yet unknown. The key changes include alterations to thrombotic risk factors and modifications to prophylaxis recommendations per aggregate risk factors. The guidance recommends that women with three risk factors be offered thromboprophylaxis from 28 weeks of gestation (rather than throughout pregnancy, which is reserved for those with four or more risk factors), and for 6 weeks postpartum, and that women with two current risk factors be offered 10 days of thromboprophylaxis postdelivery.

We evaluated the local impact of implementing the 2015 RCOG guidance on the need for thromboprophylaxis. We assessed women admitted to the postnatal ward at King's College Hospital over a 4-week period from

September to October 2015. Patient records were reviewed to ascertain risk factors for VTE identified at the initiation of antenatal care and on admission to the postnatal ward, following delivery, using both the 2009 and 2015 RCOG VTE risk assessment tools.

A total of 227 deliveries were reviewed, representing 66.4% of all postnatal admissions. Six admissions were excluded: one woman on therapeutic enoxaparin, for a new deep vein thrombosis in the antenatal period, and five women readmitted in the puerperium. The mode of delivery was vaginal for 142 women and caesarean section for 79 women (48.1% elective). Using the 2009 guidance antenatally, two women were at high VTE risk, nine women were at intermediate risk, and 210 women were at low risk. With the 2015 guidance, the only change was a reclassification of one woman from low risk to intermediate risk. Of those assessed as intermediate VTE risk using the 2015 guidance, seven out of ten would not require thromboprophylaxis until 28 weeks of gestation. Of the women delivering by caesarean section, 93.6% met the 2015 criteria for postnatal thromboprophylaxis, compared with 21.1% of women with vaginal delivery. The most common risk factors for thromboprophylaxis were caesarean section, a body mass index (BMI) of $\geq$30 kg/m^2, and maternal age. Our findings confirm that eligibility for postnatal thromboprophylaxis remains high, with 46.6% of the 2015 cohort qualifying for thromboprophylaxis, compared with 44.8% using the 2009 guidance.

Contrary to expectation, there was no significant difference in the numbers requiring antenatal and postnatal thromboprophylaxis when comparing 2009 and 2015 guidance. We have confirmed high rates of thromboprophylaxis after caesarean section, in keeping with Palmerola et al., and additionally found a significant proportion of women delivering vaginally qualify for thromboprophylaxis. This may be in part linked to the tertiary nature of our centre and a population at potentially higher obstetric risk; thromboprophylaxis rates may be diminished in settings managing women at low obstetric risk. We agree with Palmerola et al. that 'there is an urgent need to clarify optimal regimens', and that the challenge of determining the impact of different VTE prevention strategies on maternal outcomes remains. ■

References

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3 Royal College of Obstetricians and Gynaecologists. *Green-top Guideline 37a: Reducing the Risk of Thrombosis and Embolism During Pregnancy and the Puerperium*. London: RCOG, 2015.

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Authors' reply

Sir,

We read with interest the excellent short report by Omunakwe et al.[1] that compares 2009 thromboprophylaxis guidelines from the Royal College of Obstetricians and Gynaecologists (RCOG) with those released in 2015.[2] The authors evaluated a cohort of patients admitted to the postnatal ward at King's College Hospital to determine what proportion of women, based on risk factor criteria, would receive thromboprophylaxis. Similar to us, these authors found that a large proportion of women who underwent caesarean delivery met the criteria for postpartum prophylaxis. The authors performed their analysis in a referral teaching hospital that, like ours, may include a patient population that has a higher prevalence of risk factors for thromboembolism than the general population. The findings from both studies support the suggestion that an 'opt out' policy for tertiary centres, where pharmacologic prophylaxis is administered empirically after caesarean section, in the absence of a specific contraindication, may represent a reasonable clinical alternative to risk factor-based scoring, and would simplify care and improve adherence to guidelines.

In addition to evaluating women after caesarean delivery, the analysis by Omunakwe et al. evaluated women who had undergone vaginal delivery – patients who were not included in our study. In the USA, the use of prophylaxis after vaginal delivery is very uncommon, and is restricted to the small proportion of women with prior thromboembolism events and/or thrombophilias.[3] Omunakwe et al. found that, based on risk factors, 21.1% of women who underwent vaginal delivery met the criteria for prophylaxis. Given that most women deliver vaginally, and that many common obstetric and medical conditions may carry similar thromboembolism risk to cesarean delivery,[4] such an approach may be beneficial; however, at the current time, broader prophylaxis is not supported by guidelines other than those from the Royal College of Obstetrics and Gynaecology (RCOG).[5,6]