NO in Early Pregnancy and Development of Preeclampsia

To the Editor:

WereadwithinterestthearticlepublishedbyKhanetal.1 Between April2001 andNovember2002 weconducted aprospective study approved by the Bioethics Committee.2,3 There wereincluded68healthypregnantwomen,primigravidas, youngerthan25years, and attending theHospitalGineco ObstetriticoIsidroAyorainQuito,Ecuador. Allwomenswere includedat16weeks ofgestationandwereevaluatedevery4 weeks untilweek36, afterthenevery2weeksuptodelivery. Onsetofpreeclampsia wasdefinedas a blood pressure >140/"90 mm Hg on at least 2 occasions more than 6 hours apart and proteinuriatepsilon than 300 mg/dL. In every control a blood sample was taken and immediately transferredinto a vial containing3.15% sodium citrate (1:9 v/v) and gently mixedby inversion. Samples taken at delivery wereobtainedbefore labor activity was present. NO wasquantified using a chemiluminescence system (NOA 280, Sievers System) as reported.4 Preeclampsia wasfound in 13.3% (n=9) of all studied women. Concentrations of NO were different in women with normal pregnancy (P=0.009), but not in women who developed preeclampsia. During normal pregnancy, NO concentrations at week 16 (29 standard error mean [SEM] 3.6 μmol/L; P=0.04) decreased at week 20 (21.1 SEM 1.7 μmol/L; P=0.04) and week 24 (18.7 SEM 1.7 μmol/L; P=0.01). However, at week 28, there was a slight increase (23.2 SEM 2 μmol/L), followed by a decline at week 32 (19.3 SEM 1.5 μmol/L; P=0.04 versus week 16). From thentodelivery, there was a progressive increase in NO concentrations at week 36 (22.2 SEM 1.5 μmol/L) and week 38 (28.2 SEM 4.2 μmol/L; P=0.04 versus week 32). Interestingly, NO concentrations at 38 weeks and at delivery (28.8 SEM 3.7 μmol/L) were no different from those at 16 weeks. However, in women with preeclampsia, NO concentrations at week 16 (13.8 SEM 1.3 μmol/L) were lower than those obtained at week 20 (19.3 SEM 2.5 μmol/L; P=0.06). At week 24 there was a decline in NO concentrations (14.6 SEM 2.6); this reached its maximum level at week 28 (23.4 SEM 3.7 μmol/L; P=0.06 versus week 24 and P=0.02 versus week 16). From then, NO concentrations decreased at week 32 (17 SEM 1.2 μmol/L) and remained with no change until delivery (19.3 SEM 1.2 at week 36). NO concentrations were higher in normal pregnancy compared with preeclampsia at week 16 (P=0.006) and delivery (P=0.04). Using acutoff NO concentration at week 16 of 13.25 μmol/L, the relative risk for future onset of preeclampsia was 13.33 (95% confidence interval 1.82 to 97.82), with a sensitivity of 80% and a specificity of 90%. Also, the test showed a positive predictive value of 66.7% and a negative predictive value of 95%, with a likelihood ratio of 8.4. This constitutes the first followup study of NO in women with normal pregnancy and in those whodevelop preeclampsia.

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