Questionable Role of the Angiotensin II Receptor Subtype 1 Autoantibody in the Pathogenesis of Preeclampsia

To the Editor:

Other than its critical role in cardiovascular and fluid homeostasis, several lines of evidence connect the renin–angiotensin system with hypertensive pregnancy disorders. Recent findings further support the key role of the renin–angiotensin system in the etiology of pregnancy-related hypertensive disorders, since Wallukat et al.1 identified an agonistic autoimmune antibody against the angiotensin II receptor subtype 1 (AT1-AA) as being detectable in preeclamptic patients but not in women with healthy pregnancies or in those with essential hypertension.

Although there was a clear rationale for assuming that AT1-AA could be one of the circulating factors causing the maternal syndrome and the preeclamptic phenotype, we identified the AT1-AA also in normotensive pregnancies with intrauterine growth restriction and in pregnant women without clinical signs of maternal or fetal compromise and, thus, excluded the AT1-AA as a specific marker for preeclampsia. Because the AT1-AA-positive pregnancies were characterized by an increased uterine placental resistance presenting with abnormal Doppler findings of the uterine arteries,2 the AT1-AA should be regarded as a consequence of an impairment placental development rather than mediating the preeclamptic phenotype.

In one of the last issues, however, Hypertension published 2 articles implicating that the AT1-AA may still keep causative properties in the development of preeclampsia and postpartum cardiovascular diseases. Hubel et al.3 documented the persistence of the AT1-AA months after preeclampsia in 17% of the affected women, which leads to the speculation that the AT1-AA could be the link to the long-term cardometabolic risk after preeclampsia. The second article4 described repetitively the occurrence of the antibody in maternal circulation in women with preeclampsia, but could also demonstrate the AT1-AA first in fetal circulation. The latter one is not surprising, because antibodies of the IgG class usually cross the placenta. Because both publications still implicate a causative role for the AT1-AA in the manifestation of preeclampsia, we would like to add further evidence against their conclusion other than our published findings that the AT1-AA does not correlate with confirmed markers of preeclampsia as sFlt1. In a case report, we previously described a high maternal sFlt1 level and proteinuric hypertension in a pregnancy with virus-induced hydrops of fetus and placenta.5 A clinical situation associated with the disappearance of the preeclamptic symptoms and after resolution of hydrops after intravascular transfusion was presented as 100%. Resolution of the hydrops after intravascular transfusion reversed the preeclamptic symptoms paralleled by a significant fall of the circulating sFlt1 concentrations. However, AT1-AA level did not drop with normalization of clinical situation. *P<0.05 vs preeclamptic phenotype.

We take these findings as an additional strong proof that the AT1-AA may keep cardiovascular modulatory properties but is not causative for the preeclamptic phenotype.

Disclosures

None.

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