

Preeclampsia May Increase Kidney Problems

Similar risk patterns applied to other categories of kidney disease .

BY BJORN EGIL VIKSE, MD, PhD

Pregnancy complicated by preeclampsia or giving birth to a low-weight infant increases the chance of kidney disease later in life for the mother.¹ It is well known that preeclampsia is associated with cardiovascular disease (CVD) in the mother later in life. To our knowledge, the study my colleagues and I recently published in the *Journal of the American Society of Nephrology*, is the first to document a strong relationship between preeclampsia and low birth-weight offspring and later clinical kidney disease in the mother.

Kidney disease and CVD are strongly linked in terms of risk factors also associated with constituents of metabolic syndrome, but no large population studies have investigated whether kidney disease is associated with adverse perinatal outcome. Persistent microalbuminuria after preeclampsia for up to 5 years has been seen in 20% to 40% of mothers, according to previous studies.^{2,3}

Because microalbuminuria is widely known as a cardiovascular and renal risk factor, preeclampsia may then be associated with kidney disease.

We took our information from the Medical Birth Registry of Norway, which contains data on all childbirths in the country since 1967. We also used data from the Norwegian Kidney Biopsy Registry, which houses information on all kidney biopsies in Norway since in 1988.

Our study included all women with a first singleton delivery from 1967 to 1998, a total of 756,420 women. We then analyzed pregnancy-related predictors of later kidney biopsy using Cox regression analyses. After a mean follow-up of 15.9 ± 9.4 years, 588 women had a kidney biopsy.

Comparing women without preeclampsia who had offspring that weighed ≥ 2.5 kg, to women without preeclampsia and offspring weighing 1.5 kg to 2.5 kg, the latter group had a relative risk (RR) for later kidney biopsy of 1.7. Women who did not have preeclampsia and had babies that weighed < 1.5 kg had a RR of 2.9 for later kidney biopsy. Women who had preeclampsia and gave birth to babies weighing ≥ 2.5 kg had a RR of 2.5. Women with preeclampsia and offspring weighing 1.5 kg to 2.5 kg had a RR of 4.5. Finally, women who had preeclampsia and had

babies that weighed < 1.5 kg had an RR of 17.

When we adjusted the results and excluded women who had diabetes, kidney disease or rheumatic disease before pregnancy, similar results were found. We also found that the same risk patterns applied to any specific categories of kidney disease as well as specific kidney diseases we looked at.

We found that women who had preeclampsia and gave birth to offspring with low birth weight and short gestation had a substantially increased risk for having a later kidney biopsy. Most of the increase occurred within the first 5 years following childbirth.

When we planned this study, we expected to find an associations between preeclampsia and low-birth weight offspring on one hand and having a kidney biopsy on the other. We were surprised, however, that the associations were as strong as they were and that preeclampsia predicted kidney disease in general, rather than specific renal diseases.

Babies with low birth weight and short gestation also increased the risk for later kidney biopsy in mothers without preeclampsia, suggesting that placental dysfunction may be an important risk factor.

Further study is needed to determine the health benefit of follow-up for kidney disease in women with previous preeclampsia. At this time, we do not know the causative relationships among preeclampsia, low birth weight and kidney disease. It may be that preeclampsia and renal disease are caused by similar mechanisms or that preeclampsia directly causes or aggravates underlying renal disease. ■

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