



# FOCUS ON RESEARCH

## LONG TERM EFFECTS OF GESTATIONAL HYPERTENSION AND PRE-ECLAMPSIA ON RENAL FUNCTION

### Researchers

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### Aim

To assess the long term effects of high blood pressure with or without protein in urine (proteinuria) during pregnancy on kidney function in later life

### Project Outline/Methodology

This study utilised record linkage of routinely collected health databases – Aberdeen Maternity and Neonatal Databank (AMND), Grampian Renal Biochemistry Database, Scottish Morbidity Records of hospital admissions for kidney disease, General Register of Deaths and Scottish Renal Registry. From the Aberdeen Maternity and Neonatal Databank we identified all women who were at least 40 years old in 2009 and had a record of their first delivery. Women who had gestational hypertension (high blood pressure only) or preeclampsia (high blood pressure with proteinuria) were compared with women who had normal blood pressure in their first pregnancy in terms of their kidney function, as assessed from the other registers.

### Key Results

We found that women with gestational hypertension were 21% and those with preeclampsia were 50% more likely than normotensive women to have their kidney function tested in later life. They were also at a slightly higher risk of developing chronic kidney disease (CKD) earlier, compared to women who were normotensive in their first pregnancy. CKD was diagnosed in 13.3% of women who previously had gestational hypertension or preeclampsia in contrast to 12.8% in normotensive women. In a subgroup of women where complete information was available, the chance of developing CKD following gestational hypertension and preeclampsia were 36% and 92% more respectively than normotensive women. Women with preeclampsia were susceptible to kidney function impairment earliest, followed by those with gestational hypertension.

### Conclusions

Our analyses showed that women with gestational

hypertension or preeclampsia were more likely to have their kidney function tested in later life. In a subgroup of women with complete information, we also found an increased subsequent risk of chronic kidney disease associated with gestational hypertension and preeclampsia. Women with gestational hypertension or preeclampsia were also found to have CKD earlier than normotensive women. In addition, the study demonstrated that those with preeclampsia had a higher risk of both cardiovascular and all cause mortality compared to normotensive women.

### What does this study add to the field?

Previous reports, although restricted in size have shown an increased risk of CKD following gestational hypertension and preeclampsia. This study using routinely collected population based health data, had the power and long enough follow up time to definitively assess the long - term risk of CKD following gestational hypertension or preeclampsia.

### Implications for Practice or Policy

There appears to be a small but significant increased risk of CKD in women with gestational hypertension or preeclampsia. The Public Health importance of this is that alongside managing increased risk of cardiovascular disease in women with preeclampsia and gestational hypertension, there is a need to also consider long term kidney function. The same lifestyle and other risk factor modifications should apply – healthy diet, physical activity, maintaining healthy weight, smoking cessation, cholesterol reduction and blood pressure management. The opportunistic screening and management of these additional risk factors should be targeted in women who have had preeclampsia or gestational hypertension.

### Where to next?

Further research is required to establish evidence about the effectiveness of kidney function screening in women with a history of hypertensive disorders of pregnancy.

### Further details from:

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