

Supplementary Information

Dietary factors that affect the risk of pre-eclampsia

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Foods and nutrients with low or no evidence of benefit

Antioxidants: vitamin C and vitamin E

As oxidative stress plays a fundamental role in the pathophysiology of preeclampsia,¹ it was previously believed that supplementation with antioxidants such as vitamins C and E might have a protective role. A randomised control trial (RCT) conducted in 1999 found that supplementation with vitamins C and E was associated with a significant reduction in plasma markers of endothelial and placental dysfunction.² However, five other studies, including a 2008 Cochrane review of ten trials, revealed that supplementation with vitamins C and E did not significantly reduce the risk of preeclampsia.³⁻⁷ Nonetheless, a small clinical trial in one centre in Malaysia has shown some potential benefit of palm oil vitamin E in the form of a tocotrienol-rich fraction (TRF, 100 mg daily) which is a more potent antioxidant and has superior anti-inflammatory properties than tocopherol in preventing preeclampsia.⁸

ω -3 Long-chain polyunsaturated fatty acids (ω -3 LC-PUFAs)

As ω -3 LC-PUFAs are implicated in anti-inflammatory and anti-oxidative pathways, ω -3 LC-PUFA supplementation has been queried as a potential therapeutic intervention in preeclampsia.⁹ However, the six studies shown in Table 2 show that ω -3 LC-PUFA supplementation in pregnancy does not significantly reduce the risk.¹⁰⁻¹⁶

Low-salt diet

High dietary sodium intake raises blood pressure therefore, women had previously been advised that lowering their salt intake might reduce their risk of preeclampsia.¹⁷ However, research now shows that reducing the intake of salt has no effect on the risk of preeclampsia.¹⁸

Magnesium

Magnesium has a significant physiological role in the regulation of blood pressure and has been successfully implemented as a treatment for eclamptic seizures.¹⁹ These findings led to the hypothesis that magnesium might be deficient in women with preeclampsia.²⁰ However, a 2014 Cochrane review of ten trials of magnesium supplementation involving 9090 women and their babies and a subsequent randomised trial of magnesium supplementation in 318 pregnant women suggested no effect on the risk of preeclampsia.^{21,22}

Zinc

Some research suggests that low maternal zinc status may be associated with increased risk of preeclampsia;^{23,24} however, there is no evidence of benefit for supplementation with 15 mg/day zinc sulphate in reducing preeclampsia risk.²⁵

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