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Genetic susceptibility of pre-eclampsia

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In pre-eclampsia the concentration of toxic compounds - for example lipid peroxides and oxygen free radicals - exceeds the power of detoxifying substances in the body, but the mechanism leading to this imbalance remains unknown. In the April Journal of Medical Genetics Petra Zusterzeel and colleagues from University Hospital Nijmegen, The Netherlands, show that a polymorphism in the microsomal epoxide hydrolase gene is associated with pre-eclampsia, suggesting that there may be a genetic susceptibility to the condition.

Zusterzeel *et al*. genotyped 183 non-pregnant women with a history of pre-eclampsia, 96 of whom had concurrently developed the haemolysis, elevated liver enzymes, and low platelets (HELLP) syndrome, and 151 healthy female controls. In the pre-eclampsia group they found a higher frequency (29%) of the high-activity genotype Tyr113/Tyr113 in exon 3 of the epoxide hydrolase gene as compared to controls (16%, OR 2.0; 95% CI 1.2-3.7) (*J Med Genet* 2001, **38**:234-237).

Microsomal epoxide hydrolase is an important detoxifying enzyme, clearing both endogenous and exogenous toxins. But paradoxically, at higher concentrations it contributes to the activation of a number of compounds, which then exhibit toxicity.

References

1. Zusterzeel PLM, Peters WHM, Visser W, Hermsen KJ, Roelofs HM, Steegers EA: A polymorphism in the gene for microsomal epoxide hydrolase is associated with pre eclampsia. *J Med Genet* 2001, 38:234-237., [http://jmg.bmjjournals.com/cgi/content/abstract/38/4/234]