Zingiber Officinale Methanolic extract Ameliorates the Features of Preeclampsia in Rat model through Nitrous oxide and antiinflammatory modulation

Shaibu O Bello, Iyabo M Adebisi
Pharmacology & Therapeutics, College Of Health Sciences, Usmanu Danfodiyo University, Nigeria

Background: Zingiber officinalis, family Zingiberaceae has a long history of use in herbal medicine to treat a variety of ailments. It has been studied extensively in animal and in vitro models, leading to speculations of its use as an antidiabetic antineoplastic and antihypertensive agent. This study was designed to determine the protective effect of Zingiber officinalis on the deleterious effect observed in a rat model of preeclampsia and gain insights into possible mechanisms.

Methods: Quantitative phytochemistry was done using standard procedures. In vivo studies involved three groups of 7 rats each: Untreated normal pregnant rats, Untreated preeclamptic rats and treated preeclamptic rats. Preeclampsia was induced by chronic inhibition of nitric oxide synthesis by L-NAME orally in pregnant rats. Systolic and diastolic blood pressure were measured using tail cuff method on day 20. Albumin/creatinine ratio in spot urine, serum urea, creatinine and plasma nitric oxide were quantified using commercially available kits on day 20. In vitro antioxidant, vasorelaxant and anti-inflammatory activities using standard procedures were carried out to assess the mechanism of action.

Result: Zingiber officinalis contains saponins, alkaloids, flavonoids and steroids. It reduced the systolic blood pressure significantly when compared to the preeclamptic control and normotensive control. The mean albumin/creatinine ratio was not significantly different in all groups. The extract also showed nitrous oxide dependent vasorelaxation of aortic rings, inhibits Formalin induced rat paw edema showed significant antioxidant activity.

Conclusion: Zingiber officinale ameliorates components of preeclampsia in rats models and and has significant antioxidant, anti-inflammatory and vasorelaxant properties.