Diabetes-2013

OMICS Group Conferences
Accelerating Scientific Discovery

4th World Congress on
Diabetes & Metabolism

August 14-16, 2013 Holiday Inn Chicago-North Shore, USA

Alterations of sympathetic nervous system, coagulation and platelet function in gestational diabetes

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Abstract

Gestational diabetes is associated with increased risk for venous thromboembolism. Activation of sympathetic nervous system affects blood coagulation, fibrinolysis and platelet activation by several mechanisms. We studied the relationship of sympathetic nervous system, coagulation and platelet function in gestational diabetes. Forty-one Caucasian women with gestational diabetes, 22 healthy pregnant and 14 non-pregnant controls were studied. We assayed serial nocturnal (at 12 pm, 4 am and 7 am) changes of the adrenergic transmitter noradrenaline, coagulation variables and platelet activation with PFA-100®.

Plasma noradrenaline increased from 4 to 7 am in both pregnant groups. During the same time period prothrombin time shortened in gestational diabetes compared with healthy pregnant and non-pregnant controls. In gestational diabetes, nocturnal FVIII:C levels were lower compared with normal pregnancy and also variables assocaited with vWF tended to be lower. Platelet activity increased at midnight in pregnant compared with non-pregnant women without differences between gestational diabetes and normal pregnancy. Gestational diabetes is associated with concomitant early morning sympathetic stimulation and activation of extrinsic coagulation pathway (shortened prothrombin time). Decreased FVIII:C may refer to compensatory anticoagulatory mechanism. These alterations could reflect increased risk of pregnancy-related thromboembolism in gestational diabetes.

Biography

Dr. Risto Kaaja became docteur en medecine (MD) in Lille in 1978. He specialized in internal medicine 1986, and got his PhD in 1985. He became associate professor in 1996 in Helsinki University and professor of medicine in the Turku University in January 2009. Pr. Kaaja has over 180 original publications, His main interests have been related to interactions between different medical conditions and pregnancy and their connections to cardiovascular health later in women´s life. In diabetes, he has been investigator in all pivotal insulin analogue studies (insulin lispro, aspart, detemir) concerning safety and efficacy during pregnancy.