

**Serotonin receptor-related coronary vasomotor function in young miniaturized pigs is additively impaired by streptozotocin-induced diabetes and Chlamydia infection but protected by simvastatin**

*Liuba P., Odermarsky M., Pesonen E., Kornerup-Hansen A.  
Cardiology, Pediatric Heart Center, Skåne University Hospital, 22185 Lund, Sweden*

Background: Children with diabetes mellitus are at risk of increased recurrence of respiratory infections. Although both infection and diabetes have been suggested to accelerate atherosclerosis already in childhood, to date there is no proof of an eventual interplay of these two in the early development of vascular disease. In addition to this, we investigated whether statin therapy initiated shortly after diabetes induction could coronary vasomotor dysfunction.

Methods: Coronary vasomotor function was evaluated in vivo by intracoronary Doppler velocimetry in 2-month old nondiabetic and diabetic miniaturized pigs in response to intracoronary bolus of serotonin, bradykinin and adenosine. Diabetes was induced by injection with streptozotocin. Animals from each group (diabetes and non-diabetes) were randomly assigned to 3-time inoculation with either saline or Chlamydia pneumoniae (CPn) at 1-week interval. Another subgroup of diabetic animals received only one inoculation with CPn. Simvastatin therapy was initiated in 4 diabetic & 3-time CPn inoculated animals 1 week after diabetes induction and continued until the end of experiment. The responses to intracoronary agonists were expressed as % change in average peak velocity from baseline.

Results: Intracoronary bolus of bradykinin resulted in similar APV responses in all animals regardless of diabetes and infection status ( $p>0.2$ ). In contrast, serotonin-induced responses were worst in animals with both diabetes and multiple CPn inoculations ( $p=0.04$  vs controls, and  $0.05$  vs mono-inoculated animals). The responses in this group were however lessened by simvastatin therapy ( $p=0.1$  vs simvastatin-nontreated animals).

Conclusion: In minipigs, streptozotocin-induced diabetes and infection with CPn appeared to have additive adverse effects on serotonin receptor-related vasomotor function of coronary circulation, while statin therapy seemed to exert some protective effect.