P-0562 Elevated gestational testosterone causes insulin resistance and increases dipeptidyl peptidase–4 activity in rats

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Introduction

Figure 1: Elevated gestational testosterone causes glucose deregulation

Figure 2: Elevated gestational testosterone increases inflammation, endothelial dysfunction and DPP4 activity

Methods

- Animals:** Pregnant Wistar rats were treated (s.c.) with either olive oil or testosterone (0.5 mg/kg) between gestational days 14 and 19.
- OGTT and IR:** Glucose tolerance and insulin resistance was estimated by oral glucose tolerance test (OGTT) and homeostatic model of assessment (HOMA-IR) respectively.
- Biochemical assays:** Malondialdehyde (MDA) was estimated by colorimetry, plasma insulin, testosterone, vascular cell adhesion molecule-1 (VCAM-1) were determined by enzyme-linked immunosorbent assay while DPP-4 activity was determined by fluorescence assay.
- Fetal outcome:** Fetal weight, placental weight, number of fetus as well as fetal resorption were evaluated as indices of fetal outcome.

Findings

Table 1: Elevated gestational testosterone causes poor fetal outcome

	Control	Testost
Fetal weight	3.7 ± 0.5	1.9 ± 0.3*
Placenta weight	8.2 ± 0.3	4.0 ± 0.3*
Number of pups	7.0 ± 0.3	4.0 ± 0.1*
Fetal resorption	Nd	4.0 ± 0.4*

Conclusions

- The results from this study demonstrate that elevation of maternal testosterone would cause glucose deregulation and endothelial dysfunction that are accompanied with increased activity of DPP–4. The data from this finding suggests that increased activity of DPP-4 may play a pathophysiological role in the development of cardiometabolic disturbances as well as poor fetal outcome.