Methods: BeWo cells were cultured under standard conditions. BeWo cells were transiently transfected with different reporter vectors and expression vectors for Sp1 or ERa.

Results: We observed that Sp1 overexpression increased basal leptin promoter activity (p < 0.0070). This effect was enhanced by E2 (p < 0.01). On the other hand, Sp1 increased leptin promoter activity of the reporter, which contains the promoter region of the leptin gene between -1551 and -1847 bp (p < 0.05), but not when the Sp1 element is mutated in this region. Sp1 effect was ERa-dependent as it had no activity in cells that had been knocked down with an ERa siRNA. We observed that there is a joint interaction between Sp1 and ERa regulating the expression of placental leptin.

Conclusions: All these findings suggest that leptin expression is tightly regulated and improve the understanding of the mechanisms whereby E2 regulates leptin expression involving Sp1 transcription factor.

PA.16.

ADIPONECTIN RECEPTOR 1 EXPRESSION IN HUMAN UMBILICAL ARTERY ENDOTHELIAL CELLS (HUAEC) FROM LARGE FETUSES (LGA) OF OBSESE WOMEN IS RELATED TO eNOS ACTIVATION

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Objectives: We aimed to determine whether Adiponectin Receptor 1 (AdipoR1) expression is related to eNOS activation in HUAEC. Additionally, we studied the differential expression of AdipoR1 and eNOS activation in large for gestational age (LGA) fetuses of obese pregnant women compared to appropriate-for-gestational-age (AGA) fetuses of normal weight pregnant women.

Methods: Primary cultures of HUAEC were obtained from the umbilical cord of term single pregnancies of AGA babies from normal weight women (A/N) and LGA babies from obese women (L/O). AdipoR1 and eNOS mRNA was measured by qPCR (Svybr Green). AdipoR1 and eNOS protein expression was measured by Western blot and total and phospho-eNOS (p-eNOS) by ELISA.

Results: HUAEC expressed the mRNA and protein for AdipoR1. In basal conditions, mRNA and protein expression of AdipoR1 and eNOS were increased in HUAEC from the L/O compared to the A/N group. P-eNOS and the p-eNOS/eNOS ratio were decreased in the L/O group.

Conclusions: AdipoR1 is overexpressed in HUAEC from L/O and a negative association to eNOS activation could be associated with further vascular compromise. The participation of the classical AdipoR1 signaling pathway is currently being studied.

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PA.18.

INTRAUTERINE GROWTH RESTRICTED RATS EXERCISED AT PREGNANCY: MATERNAL-FETAL REPERCUSSIONS

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Background: There is evidence that the nature of fetal programming is such that it is involved in many disease phenotypes, including those of successive generations. Laboratory animal models have been developed as an attempt to understand the pathophysiological mechanisms involved in an unfavorable intrauterine environment. We hypothesized that the swimming program may lead to an adequate maternal environment, improving embryofoetal development.

Objective: To evaluate the effect of swimming in pregnant rats born with intrauterine growth restriction (IUGR) and their offspring.

Methods: IUGR rats were obtained using streptozotocin-induced severe diabetic (SD) rats. The diabetic and SD pregnant rats generated offspring with appropriate (APA) and small (IUGR) weight for pregnancy age, respectively. At adult life, the APA group was maintained sedentary (non-exercised) and classified as control group and IUGR rats were distributed into two subgroups: non-exercised (IUGR) and exercised (IUGRex).

Results: The rate of mated rats in the IUGR group was reduced compared to the control group. During pregnancy, the IUGR rats presented hyperinsulinemia, impaired reproductive outcomes, decreased body weight, hypertriglyceridemia and hyperlactacidemia. The IUGRex rats presented reduced insulin and triglyceride levels. There was a reduced percentage of appropriate weight for pregnancy age (APA) fetuses in the IUGR and IUGRex groups in relation to the control group, and an increase in the proportion of small weight for pregnancy age (SPA) fetuses in the IUGRex rats compared with the control group.

Conclusion: Swimming improved lipid metabolism and increased insulin sensitivity. However, the offspring showed retarded growth, reinforcing the need to stimulate the exercise practice in women under supervision with different professional expertise to promote appropriate gestational conditions and to improve perinatal outcomes.

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