The effect of visfatin and dyslipidemia on uterine contractility

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Adipose tissue secretes adipokines which have been linked to the pathophysiology of pregnancy-related complications. Visfatin is a recently discovered adipokine whose levels were reported to be increased during obesity and pregnancy. The aim of this study is to examine the effect of visfatin on mouse myometrial contractility, both wild type and APOE knockouts (hyperlipidemia model). Myometrial strips from term non-pregnant and pregnant Wild Type (WT) and APOE Knock-Out (KO) mice were dissected, superfused with physiological saline and the effects of visfatin (10 nM–150 nM), on spontaneous and oxytocin-induced contractions (0.5–1 nM) were studied. After regular contractions were established, contractility was examined for control of 100% and test response at 37°C for 10 min. Visfatin had a relaxant effect on pregnant mouse myometrium. This effect was small in pregnant tissue contracting spontaneously. For example, in the pregnant WT myometrium, 10-150 nM visfatin produced a reduction in the 5 min area under the curve (AUC) of 95±3%, (n=8), However under more physiological conditions, oxytocin-induced contractions, a larger decrease was found (AUC=76±9%, n=4), mean±SEM. In the dyslipidemia APOE KO, the stimulation by oxytocin was reduced the AUC by (97±6%, n=4) compared to spontaneous contractions (104±4%, n=5). Together these data suggest that increased output of visfatin and dyslipidemia in obese pregnant women may impair uterine contractility resulting in labor related complications.

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Weight loss and knee osteoarthritis prevention in overweight and obese women

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Overweight is one of the major risk factors for knee osteoarthritis (OA) development. Despite this knowledge, the first ever preventive randomized controlled trial in OA research was recently completed. This study aimed to evaluate the effect of weight loss, through pragmatic tailor-made lifestyle intervention, on the incidence of knee OA after 30 months in a high-risk group of 407 middle-aged overweight and obese women. The lifestyle intervention was effective in reducing body weight at short follow-up (12 months), but not at long-term (30 months). Subgroup analysis, using Latent Class Growth Analysis, showed weight loss in mainly achieved by women with greater weight gain in recent years. The lack of a significant reduction in body weight after 30 months probably led to a non-significant effect on the incidence of knee OA. In total, 17% of all women achieved the predefined target of 5 kg/5% weight loss after 30 months. Incidence of knee OA was significantly reduced in women achieving the weight loss target (OR 0.5 [0.3-0.9] for combined clinical and radiographic knee OA and OR 0.3 [0.1-0.9] for radiographic knee OA). Moreover, blood glucose levels (HbA1c), fat percentage, waist circumference and blood pressure were significantly reduced among women achieving 5 kg/5% weight loss. Using the results of the first ever preventive trial in OA research, we now aim to design a more effective lifestyle intervention that achieves greater weight loss after long-term follow-up. Potentially, this will effectively increase health and reduce the incidence of knee OA among middle-aged women.

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