

157 Effects of oxytocin antagonist (dTVT) on uterine contractions in pregnant rats. T. Chimura, M. Hiroi, Dept. Obst. and Gynec., Yamagata Univ. Sch. Med., Yamagata.

The effect of a recently developed oxytocin antagonist dTVT, i.e., deamino-[2-D-tyrosine (OEt)-4-threonine-8-ornithine] oxytocin on uterine contraction of pregnant rats was studied in vitro. The following results were obtained.

1. dTVT treatment did not affect spontaneous, PGE₂- or PGF_{2α} - stimulated contraction, while it slightly suppressed PGE₁ analogue (Gemeprost) - stimulated contraction of the uterus.

2. Following treatment with dTVT (5-50μg/ml), oxytocin - stimulated uterine contraction was gradually and slowly suppressed, resulting in an attenuation curve. Ritodrine treatment, on the other hand, rapidly suppressed spontaneous uterine contraction as well as contraction stimulated by various oxytocics. Suppression of oxytocin-stimulated uterine contraction by dTVT took much longer (14.8±1.1min) to take effect than by ritodrine (<1min).

158 Study of Ca store sites of human uterine smooth muscle using chemically skinned-fiber. H. Izumi, Y. Sumii, H. Ushizima, H. Harada, J. Ichihara, T. Shinohara, K. Shirakawa. Dept. Obst. and Gynecol., Fukuoka Univ. Sch. Med., Fukuoka

We have developed a technique which allowed us to compare characteristic features of contraction from the same strip under intact and membrane-permeable ("skinned") conditions. Chemically skinned fiber could be treated with β-escin as well as saponin., and β-escin treated skinned fiber could be made more easily than by saponin. Furthermore, Calcium(Ca) induced contraction was evoked repeatedly using β-escin. Oxytocin could not evoke contractions in skinned condition, but prostaglandins and caffeine could evoke contraction in the same condition. The intra-cellular Ca store sites sensitive to PGF_{2α} and PGE₂ were the same but these PGs store sites were contained in caffeine sensitive Ca store sites. Inositol-trisphosphate(IP₃) could evoke more larger contraction than PGs and caffeine. The amplitudes of 20μM IP₃ induced contraction in skinned condition were almost equal to the amplitudes of 10⁻⁴ oxytocin induced contraction in intact condition. These data suggested that PGs could directly release Ca from intracellular Ca but oxytocin could not release Ca from store site via production of IP₃.

159 Effect of exogenous endotoxin on the uterine contraction in maternal goat. K. Tanaka, T. Kawamura, I. Mizue, Y. Yoneyama, H. Hatano, Y. Asakura, T. Araki*, K. Sato**, *Dept. Obst/Gynec., Nippon Medical School, Tokyo, **General Hobara Central Hosp., Fukushima.

This is a study of the effect on uterine contraction by administration of endotoxin(1.0mg of E.coli endotoxin) into maternal vein. Eight experiments were conducted on 8 chronically prepared maternal goats between 128 and 140 of gestation. We measured continuously, amniotic pressure. Blood samples were drawn at 0, 60, 180 and 300 min to determine plasma concentrations of PGE₂, PGF_{2α}, IL-1, TNF.

Result: 1)PGF_{2α} level increased from 472.4±52.0 to 670.8±58.4pg/ml in mother(p<0.05), from 665.2±81.7 to 811.0±64.0pg/ml in fetus.(p<0.05) 2)PGE₂ level increased from 3280±650 to 5323±632pg/ml in mother(p<0.05), but did not changed in fetus. 3)IL-1 level increased 20.8% in mother, 57.1% in fetus(p<0.05). 4)TNF level also increased slightly both mother and fetus. 5)Uterine activity increased gradually after administration of endotoxin.

Conclusion: Administration of endotoxin promoted the production of IL-1 and TNF. These cytokines stimulated Prostaglandins' synthesis. So that PGs' induced uterine activity.