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TITLE: The pharmacodynamics and safety of progestogens, progesterone and progestins in obstetric: What clinicians should know

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ABSTRACT (up to 300 words)

Natural progesterone (P4) has a unique pharmacodynamic activity and safety profile compared to the synthetic progestins. As a result, a class effect does not exist for both P4 and synthetic progestins, in terms of both their efficacy and safety.
Since early seventies it was shown that luteal phase deficiency, a cause of infertility and early pregnancy loss caused by inadequate secretory transformation of the endometrium resulted from deficient endogenous production of progesterone (P4). P4 is mandatory for early implantation, pregnancy maintenance, prevention of early or late miscarriage but also for prevention of preterm birth. It is shown that P4 modulates maternal immune response, suppresses inflammatory response, promotes myometrial relaxation and improves utero-placental circulation during pregnancy. However, it is not clear how a shift in the E/P4 ratio is achieved and how estrogen and progesterone signalling interacts at the level of the cervical cells before the onset of labor. In fact, the decrease of P4 activity before the onset of labor may become possible through the occurrence of modified isoforms PRB & PRA, modifications of the adjustment of the P4 receptor through transcription factors or through the non-genomic effect of P4. P4 induces a stimulation of NOS1 and inhibits the formation of gap junctions. P4 and its metabolites induce uterine quiescence through interactions between nuclear and membrane P4 receptors. P4 and its metabolites has also non-genomic relaxing effects on uterine contractility linked to the blockage of calcium influx and interact with some membrane receptors (GABAA and oxytocin receptors). Oral administered P4 undergoes several successive metabolism steps in the gut (5b-reductase activity), in the intestinal wall (5a-reductase activity) and in the liver (reductase and hydroxylase activities). 5α-pregnanolone and 5ß-pregnanolone bind GABAA receptor. Neuroprotective effects of progesterone and allopregnanolone have been demonstrated in many injury models, including cerebral ischemic stroke but also in neonates.
Structural differences exist between P4 and the synthetic progestins, resulting in different safety profiles when they are used during the menstrual cycle, in early and late pregnancy and in the alleviation of peri- or postmenopausal symptoms.

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BIOGRAPHY (up to 200 words)

An experienced Pharmacist Post-Graduate in Clinical and Endocrinological Chemistry now specializing in men's and women's health pharmaceuticals development, care and counselling. Extensive knowledge relative to men's and women's healthcare pharmaceutical environment. In addition, I have considerable expertise in KOLs management, training, educational program development and marketing. I published some review and have written on the subject of menopause, luteal phase support in ART in women and late onset of hypogonadism in men. I have excellent communication and cross-cultural skills, speaking French but also Flemish and English fluently. **Senior Research fellow**. Expert and speaker at PRISM Post-Graduate International of Men's Health School (School) - Bruges – Belgium (since 2013). Expert and speaker at International PREIS School – Florence – Italy (since 2012). Consultant & **Scientific & Medical Affairs Director** at Besins Healthcare Corporate (since 2006)