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Compared efficacy of Lecirelin and hCG for ovulation induction in mares

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Aim
Test an other GnRH-agonist in saline solution available as veterinary Drug in Europe (licensed for cows and rabbits) = Lecirelin

hCG = Gold standard to induce ovulation BUT \rightarrow immunization AND \searrow efficacy
1st Alternative = long-acting GnRH agonists BUT none = available in Europe
2nd Alternative = high dosages of buserelin or triptorelin (saline solutions) BUT only human formulations = available in Europe (allowed usage ? \leftrightarrow European drugs regulation)

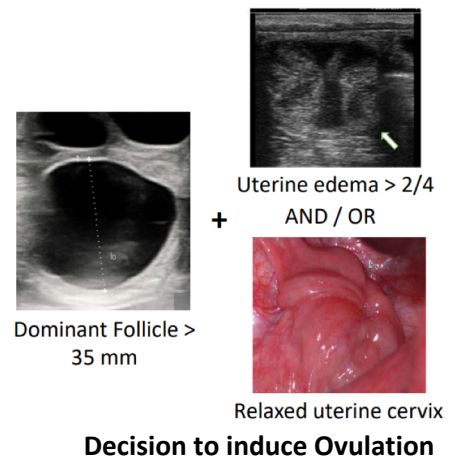
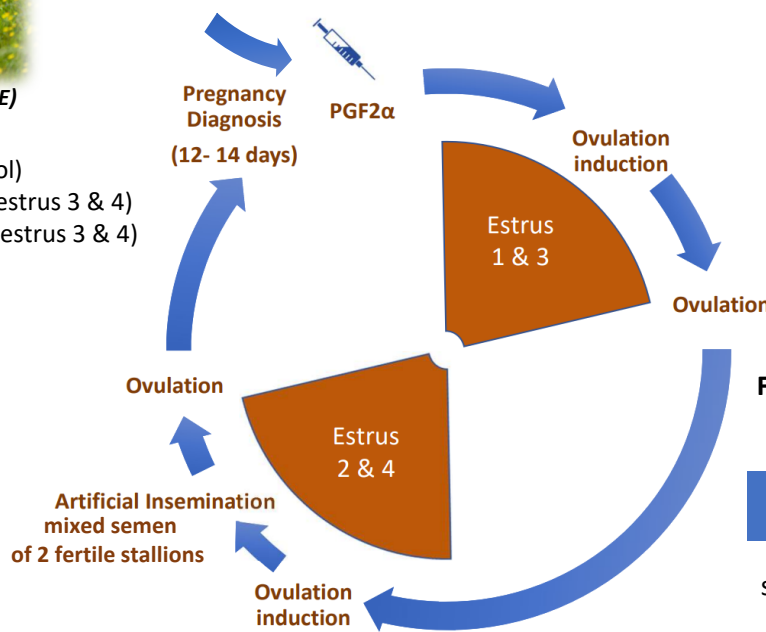
Materials and Methods



Experimental herd of mares (Jumenterie du Pin IFCE)

From 19/04/2022 to 08/08/2022
42 mares
• 33 Warmbloods, 9 Standardbreds
• 3-22 years old (M = 13 ± 5,3)

Ultra-sound genital examinations
Daily before ovulation induction
every 12 hours after ovulation induction.



4 consecutive estrous cycles (mare = own control)
Group A = 20 (Lecirelin on estrus 1 & 2; hCG on estrus 3 & 4)
Group B = 22 (hCG on estrus 1 & 2; Lecirelin on estrus 3 & 4)

	Group A (20)	Group B (22)
Estrus 1 & 2	200 µg Lecirelin IV	1500 UI hCG IV
Estrus 3 & 4	1500 UI hCG IV	200 µg Lecirelin IV

For each of same mares:
2 paired estrous cycles after PGF2α
2 paired spontaneous estrous cycles
Success of induction
24 ≤ ovulation ≤ 48 hours after induction

statistically analyzed with Mc Nemar's Chi² test for paired cycles

Ovulation induction protocol

Mares management protocol on 4 consecutive cycles

Results

2 paired cycles after PGF2a for 40/42 mares
2 paired spontaneous cycles for 35/42 mares
No difference : \emptyset of follicle at induction

Success rates of induction 24-48 hours post-injection : No difference
lecirelin (71%) versus hCG (83%) on estrus following PGF2α
Lecirelin (43%) versus hCG (68%) on spontaneous estrus

28/35 mares inseminated on both spontaneous estrus.
Pregnancy rates : No difference
lecirelin (19/28 ; 68%) versus hCG (15/28 ; 54%).

Ovulation time post-injection of hCG and Lecirelin, for spontaneous estrus or after chemical luteolysis in paired cycles

	Spontaneous estrus	Ovulation after hCG injection			
		24 – 48 h	< 24 h	> 48 h	Total
Ovulation after Lecirelin injection	24 – 48 h	12	1	3	16 (43%)
	< 24 h	1	0	0	1
	> 48 h	11	1	6	18
	Total	24 (68%)	2	9	35
Estrus after chemical luteolysis	Ovulation after hCG injection				
	24 – 48 h	< 24 h	> 48 h	Total	
Ovulation after Lecirelin injection	24 – 48 h	23	6	0	29 (71%)
	< 24 h	2	0	0	2
	> 48 h	9	0	0	9
	Total	34 (83%)	6	0	40

Conclusion

Saline solution of lecirelin licensed in Europe for bovine and rabbit
 \rightarrow alternative to hCG to induce ovulation in mares in better compliance with European Veterinary Medicinal Products Regulation than human GnRH agonists largely used in mares

Further studies :
To test subcutaneous versus intravenous injections
To test other dosages versus 200 µg

Aknowledgments



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