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Compared efficacy of Lecirelin and hCG for ovulation induction in mares

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hCG = Gold standard to induce ovulation BUT ✗ immunization AND ✗ 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 ? ⇔ European drugs regulation)

Aim

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

Materials and Methods



Experimental herd of mares (Jumenterie du Pin IFCE)

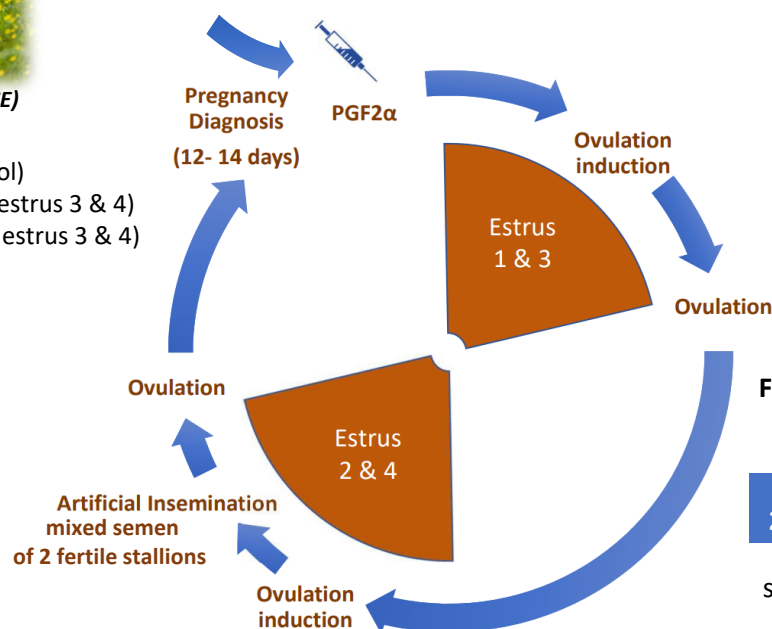
4 consecutive estrous cycles (mare = own control)
 Group A = 20 (Lecirelin on estrus 1 & 2; hCG on estrus 3 & 4)
 Group B = 22 (hCG on estrus 1 & 2; Lecirelin on estrus 3 & 4)



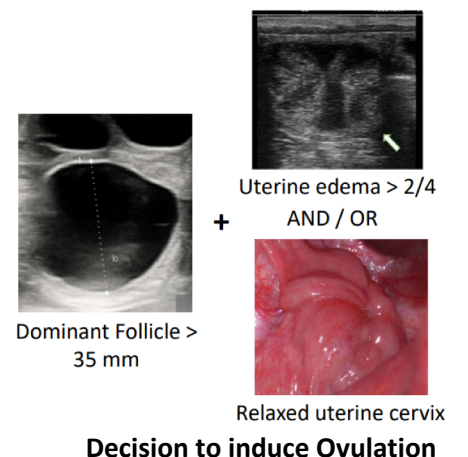
Ovulation induction protocol

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.



Mares management protocol on 4 consecutive cycles



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

Results

2 paired cycles after PGF2α for 40/42 mares
 2 paired spontaneous cycles for 35/42 mares
 No difference : ∅ 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
 ➔ 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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