

PROPER USE OF HORMONES (Part I)

by

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1. Buserelin :

Pharmacological action :

Stimulate a short surge of FSH and LH following a single bolus injection which causes follicular development, oestrus and ovulation.

I. Indications :

Cattle

- ⇒ Anoestrus - 20mcg (i.e 5 ml.), repeat after 8-22 days, if required.
- ⇒ Delayed ovulation - 10ng (i.e 2.5 ml.) 6-8 hours before or at the time of insemination.
- ⇒ Improvement of pregnancy rate - 2.5 ml. 6-8 hours before or at the time of insemination or 11-12 days after insemination.
- ⇒ Follicular cyst - 5ml, repeat after 10-14 days if required.

II. Commercially available product:

a) Receptal (Intervet) 0.0042 mg/ml, 10 ml. vial.

Dose :

Cattle - 10-20mcg (total dose)

Horse - 40µg (total dose)

Route :- Intramuscular (preferred) or intravenous.

2. Gonadorelin :

I. Indications and dose :

- ⇒ Cystic ovaries - 500mcg, repeat if required.
- ⇒ In conjunction with AI - 250mcg.
- ⇒ Postpartum anoestrus - 500mcg repeat after 1-3 wks

II. Commercially available product:

a) Fertagyl (Intervet), 100mcg/ml, 1ml amp.

b) Cystorelin (BCAHP), 50mcg/ml. 2ml. & 10 ml. vial.

Route - Intramuscular.

3. Human Chorionic Gonadotropin (hCG):

It is a complex glycoprotein excreted in the urine of women during pregnancy. It has primarily similar effect to LH secreted by the anterior pituitary gland. Hence it is used as a substitute for the more expensive LH. It also has longer half-life than LH.

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Pharmacological action :

hCG mimics the effect of LH causing ovulation. It promotes the formation and maintenance of corpus luteum in females.

I. Indications and dose :

- ⇒ Delayed ovulation or anovulation - 1500 IU-I/M at the time of A.I.
- ⇒ Follicular cyst- 3000 IU-I/V.
- ⇒ Repeat breeders - 1500 IU-I/M.

II. Commercially available product:

- a) **Chorulon** (Intervet) 1500 IU vial

4. Pregnant Mare Serum Gonadotropin (PMSG or eCG):

It is also a complex glycoprotein. It is extracted from mare's serum during the first trimester of pregnancy. The effect of eCG is similar to FSH.

Pharmacological action :

It induces follicular growth in inactive ovaries of mature animals.

I. Indications :

Cattle :

- ⇒ Superovulation.
- ⇒ True anoestrus.

II. Commercially available products :

- a) **Folligon** (Intervet) 1000 IU vial + Solvent.

Dose and route : 1500-3000 IU-I/M or I/V.

Note : In the treatments of anoestrus, AI should not be done induced oestrus.

5. Hydroxy-progesterone Caproate :

Pharmacological action :

It mimics the action of corpus luteum.

I. Indications:

- ⇒ Postpartum anoestrus
- ⇒ Threatened abortion or habitual abortion
- ⇒ Early embryonic death.

Dose and route :

- 500 mg intramuscular
- Early habitual abortion - 500 mg after 1.5 months of pregnancy, repeat at every 10 days.
- Late habitual abortion - 500 mg for 3 days followed by 500 mg/week.

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II. Commercially available products :

- a) **Duraprogen** (Vetcare) 250 mg/ml, 2ml. amp.
- b) **P-depot** (Sarabhai-Zydus) 250 mg/ml, 2ml. amp.

6. Oestrogen:

Pharmacological action :

Oestrogen is primarily responsible for oestrus behaviour in the female. It increases the natural defence mechanism against infection.

Therefore, oestrogen is used to treat chronic endometritis. It must not be used in acute uterine infections because it enhances the absorption of bacterial toxins. Oestrogen is used in the treatment of misalliance in the bitch. It acts by inhibiting the transport of the fertilized ova from the oviduct to the uterus.

Oestrogen is also called epitheliotropichormone, since vasostimulation and general health of the skin are favoured. This is why the female has a softer, thinner, and more luxuriant skin than the male.

Side-effect: Over dose may cause severe inhibition of pituitary function and cystic ovaries in cattle and pigs.

I. Indications

- ⇒ Ripening of cervix in case of dystocia
- ⇒ Chronic endometritis
- ⇒ Pyometra
- ⇒ Mummification
- ⇒ Hydramnios
- ⇒ Hydrallantois.

II. Commercially available products

a) **Progynon depot** (Oestradiol valerate) 10mg/ml, 1ml amp.

Dose : 5-10 mg/ml., repeat at 7-days intervals, if required.

7. Prostaglandins:

Cloprostenol, dinoprost, luprostirol and tiaprost are synthetic PGF_{2a} or analogues available for use in veterinary practice.

Tire corpus luteum is refractory (resistant) to the action of PGF_{2a} analogues for at least 5 days after ovulation in mares, cows, ewes and does while in sows, the refractory period is up toll days.

In bitches and queens, the CL is generally unresponsive at any time after ovulation unless subjected to repeated doses.

The primary effect of PGF_{2a} on the reproductive system is regression of corpus luteum.

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I. Indications :

- ⇒ Pyometra
- ⇒ Mummification
- ⇒ Endometritis
- ⇒ Luteal cyst
- ⇒ Induction of parturition
- ⇒ Synchronisation of oestrus
- ⇒ Silent heat.

II. Commercially available products and their doses

A. Cloprostenol :

- a) **Vetmate** (Vetcare) 2 ml. vial
 - b) **Synchromate** (Prima vetcare) 2 ml. vial
- Dose - 2 ml. I/M.

B. Dinoprost

- a) **Lutalyse** (Novartis) 5 mg/ml, 10 ml. vial
- Dose - 25 mg or 5 ml. I/M.

C. Luprostiol

- a) **Prosolvlin** (Intervet) 7.5 mg/ml, 2ml. vial
- Dose - Cow-15 mg. or 2 ml I/M
Heifer & mare - 7.5 mg. or 1 ml. I/M

D. Tiaprost :

- a) **Iliren** (Intervet) 0.196 mg/ml ,10 ml vial
- Dose - 3.5 ml 1/ Vor 5ml I/M

8. Oxytocin:

- Oxytocin stimulates contraction of the oestrogen-sensitized myometrium. This activity may be of benefit in dystocia due to secondary uterine inertia.
- Oxytocin should not be used when dystocia is related to malposition or malpresentation or foeto-maternal disproportion.
- Many recommended dose rates are too high. The myometrium is very sensitive to the effects of oxytocin and high dose rate causes spasms rather than synchronized contractions.
- Oxytocin is most effective when used in an intravenous drip in saline.
- Oxytocin must be used within 12 hours of calving, after which myometrial sensitivity to its action is reduced.
- Oxytocin has been recommended to evacuate the udder of the cow in the treatment of mastitis.

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- Oxytocin injections are recommended to induce contractions of the uterus after caesarean section.

I. Indications :

- ⇒ Postpartum haemorrhage
- ⇒ Primary uterine inertia
- ⇒ Uterine involution after dystocia
- ⇒ Prolapse of uterus (After replacement)
- ⇒ Agalactia due to failure of milk let-down.

II. Commercially available products:

- a) **Oxytocin** (Local) 5 IU/ml, 1 ml amp.
- b) **Pitocin** (Parke-Davis) 5 IU/0.5 ml, 0.5 ml. amp.
- c) **Syntocinon** (Novartis pharma) 5 IU/ml, 1 ml. amp.

Dose :

	Obstetrics	Milk let down
Mare -	75 -150 IU	10 - 20 IU
Cow -	75 -100 IU	10 - 20 IU
Sow -	30 - 50 IU	5 - 20 IU
Ewe -	30-50 IU	5 - 20 IU
Bitch -	5-25 IU	2 - 10 IU
Queen	5-10 IU	1 - 10 IU

See the Hormone Protocol Chart on Next Page:-

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127. Hormonal Protocols Chart

HORMONAL PROTOCOLS CHART															
	0 day	1	2	3	4	5	6	7	8	9	10	11	12	13	14 th day
1	PG For Cyclic	Inj. Clostenol 2ml IM	Heat & A.I.									Inj. Clostenol 2ml IM		Heat & A.I. after 60- 72h of Inj	
2	CIDR For Acyclic	Insert CDR						Remove CDR	Heat A.I.						
3	CIDR + PG For Cyclic	Insert CDR						Remove CDR Inj Clostenol 2ml IM	Heat A.I.						
4	CIDR + FOLLIGON For Acyclic (deep)	Insert CDR						Remove CDR Inj Folligon 2.5ml IM	Heat A.I.						
5	CIDR + GnRH + PG For Cyclic/Acyclic (Fixed Time A.I.)	Insert CDR Inj. Receptal 2.5ml IM						Remove CDR Inj. Clostenol 2.5ml IM	2 nd Inj. Receptal 2.5ml Do A.I. after 12h of oestrus						
6	GnRH + PG For Cyclic/Acyclic	Inj. Receptal 2.5ml IM						Inj. Clostenol 2ml IM	Heat A.I.						
7	GnRH + PG + GnRH For Cyclic/Acyclic (Fixed Time A.I.)	Inj. Receptal 2.5ml IM						Inj. Clostenol 2ml IM	Heat & A.I. (optional) 2 nd Inj. Receptal 2.5ml A.I. after 12h of Injection						
<p>Folligon INTERVET PMSG Major FSH) 1000 IU in 5 ml @ 2.5 ml IM store 2-8 C, Chorulon (INTERVET) hCG, LH activity) 1500 IU @ 1500-3000 IU IM indicated in nymphomania, cystic ovary, longer heat, store 2-8 C, Clostenol ZYDUS (Synthetic PgF2alpha, cloprostenol 500mcg in 2ml @ 2ml IM; Receptal INTERVET (Synthetic GnRH Burserlin acetate 40 mcg in 10ml@ 2.5ml IM; CIDR PFIZER - natural progesterone 1.38gm)</p>															