



ENDOMETRITIS

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LESSON IV

- *Therapeutic approaches for
endometritis*

PROGESTERONE Vs OESTRADIOL

- High progesterone environment suppresses
 - > Cervical mucus secretion
 - > myometrial contractility
 - > the phagocytic activity of uterine neutrophils
- High oestradiol
 - > increases vascular porosity
 - > promotes migration of leucocytes and eosinophils
 - > increases concentration of immunoglobulins
 - > favours physical clearance of inflammatory fluid.

Progesterone influence is permissive to uterine infection

Oestradiol environment facilitates removal of microorganisms

PROSTAGLANDIN TREATMENT

- The benefit of PGF₂α administration arise from induction of oestrus in cows having a responsive corpus luteum.
- The PG induced oestrus leads to physical expulsion of bacterial contaminants and inflammatory products.

(Kasimanickam *et al.*, 2005)

- PGF₂α is not only luteolytic but also have pro-inflammatory actions that might enhance neutrophil function.

(Lewis, 2004)

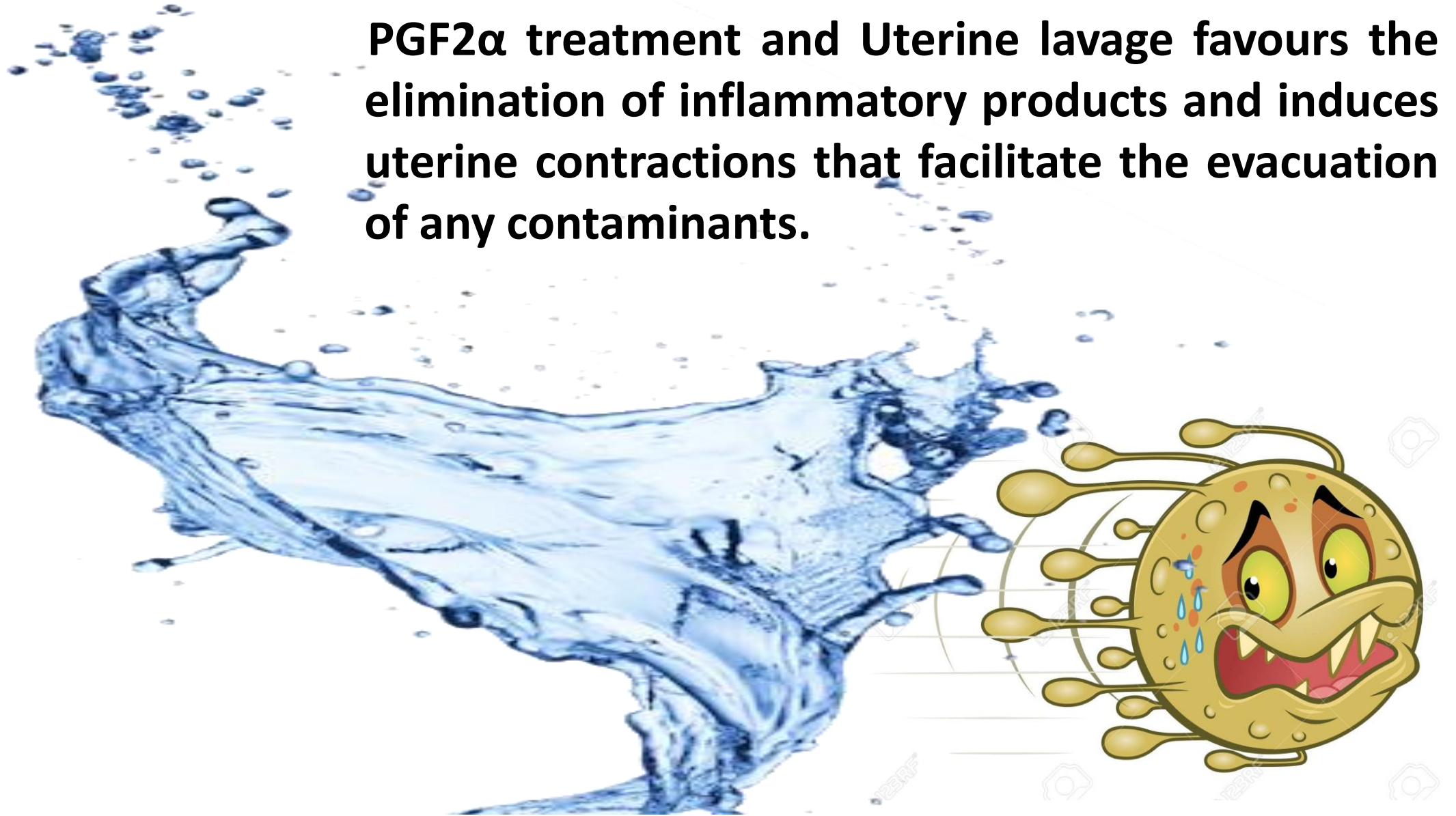
UTERINE LAVAGE

- Uterine lavage with sterile normal saline solution is a common treatment for endometrial inflammation
- Uterine lavage should be conducted for three consecutive days from the day of oestrus (Day 0)

Sterile normal saline (30 ml) solution should be infused into the uterus by using intrauterine stainless steel catheter with a 50 ml disposable syringe.

After 3–5 min, the uterine fluid was recovered by gentle massage, back racking and aspiration

PGF2 α treatment and Uterine lavage favours the elimination of inflammatory products and induces uterine contractions that facilitate the evacuation of any contaminants.



ANTIBIOTIC THERAPY

- **Intrauterine antibiotic therapy is not indicated in Clinical endometritis**
- **The efficacy of local antibiotics is diminished by**
 - > the presence of pus and organic debris in the uterine fluids**
 - > the oxygen deficient atmosphere of the infected uterus.**
- **The systemic administration gives a better distribution in the tubular genital tract and eliminates the risk of damage to the endometrium.**

ANTIBIOTIC THERAPY

contd.,

- **Broad spectrum antibiotics such as oxytetracycline (22 mg/kg body weight) will provide effective minimal inhibitory concentrations in the lumen and uterine tissues.**
- **Systemic Streptopenicillin (2.5 – 5.0 gm) results in genital tract tissue and lumen concentrations similar to blood plasma concentrations.**
- **Other antimicrobials such as metronidazole, ciprofloxacin and cephalosporin are administered systemically for the treatment of uterine infections.**

ANTIBIOTIC THERAPY

contd.,

- Sub-clinical endometritis, where uterine environment is free of pus and debris, intrauterine fluoroquinolones (Levofloxacin / Ofloxacin / Ciprofloxacin) are effective.
- Combination of Levofloxacin / Ofloxacin + Ornidazole + α -tocopherol provide better recovery
 - > Levofloxacin / ofloxacin -bactericidal action
 - > Ornidazole – against anerobic bacteria
 - > α -tocopherol - powerful antioxidant

INTRAUTERINE ANTISEPTIC THERAPY

POVIDONE IODINE

- Polyvinylpyrrolidone-iodine (povidone-iodine) is a broad-spectrum microbicide with potency to inactivate bacteria, fungi, protozoans and several viruses.
- Intrauterine infusion of povidone-iodine (2%) promotes regeneration of endometrial epithelial cells and improves fertility.

SUCCESSFUL APPROACH

- A combination of systemic antibiotic + intrauterine antiseptic + Hormone therapy and sexual rest in induced oestrus helps in successful conception.
 - > Inj. Streptopenicillin (5 g; IM) along with 30-40 ml Povidone Iodine for three consecutive days
 - > Followed by PG (Inj. Cloprostenol 500 μ g / Inj. Dinoprost tromethamine 25 mg; IM) on the mid luteal phase of the cycle.

PLATELET CONCENTRATE THERAPY

- Platelet concentrate (PC) enriches the uterine environment with factors necessary for embryo development and counteracts eventual subclinical endometritis by its anti-inflammatory properties.
- Administration of PC (10 ml) into the uterus of animals at 48 hrs after insemination produced very encouraging results in repeat breeding cows

(Lange-Consiglio *et al.*, 2015)



Use of certain herbal preparations for fertility regulation was well documented in ancient literatures.

RADISH (Raphanus sativus)

***R. sativus* has anti-inflammatory activity**

(Park and Song, 2017)

The root contains 'raphanin' - antibacterial and antifungal properties- strongly active on *E. Coli*

(Bettaieb *et al.*, 2011)

CUMIN (Cuminum cyminum)

The volatile oil of *C. Cyminum* is active against *E. Coli*, *Staphylococcus epidermidis*, *S. aureus*, *Corynebacterium diphtheriae*, *Salmonella typhi*, *Klebsiella pneumonia* etc.,

(Chaudhary *et al.*, 2014)

EVM FOR SUB-CLINICAL ENDOMETRITIS

- 10 gm of wet grounded *Cuminum cyminum* smeared on the tongue of the animal
- One piece of *Raphanus sativus* (150-200 g/day) given orally
- Daily once for 5 days



The recovery percentage against subclinical endometritis - 85.71%.

Elamaran et al., (2018)

SUMMARY

- **Line of treatment has to be determined based on the severity of the uterine infections**
- **Intrauterine antibiotics is indicated only in subclinical infections and not in clinical conditions.**
- **Combination of prostaglandin, intrauterine antiseptic and parenteral antibiotic seems to be a successful line of treatment for endometritis.**
- **Cytology and cultural sensitivity tests will be advantageous in deciding the drugs**

CVE – AGMOOCS - TANUVAS



Thank you !!