ELEVENTH ANNUAL

HOUSE OFFICER SEMINAR DAY

FRIDAY, MARCH 17, 1989

Veterinary Medical Teaching Hospital
School of Veterinary Medicine
University of California, Davis

-Program-

8:00-8:10 a.m. Welcome — Dr. Edward A. Rhode
Dean, School of Veterinary Medicine

8:10-8:15 a.m. Welcome — Dr. Charles A. Hjerpe
Director, Veterinary Medical Teaching Hospital

Session I

(Papers limited to 10 minutes with 5 minutes for open discussion)

Moderator: Dr. Don Low
Dean's Office of Public Programs

8:15 1. IDENTIFICATION OF TYPE I AND TYPE II DIABETES MELLITUS IN THE CAT USING A GLUCAGON TOLERANCE TEST.
CA Kirk, DVM
Resident II Small Animal Internal Medicine

8:30 2. DECISION-TREE ANALYSIS OF TREATMENT ALTERNATIVES FOR LEFT DISPLACED ABOMASUM.
PL Ruegg, DVM, MPVM
Resident III Food Animal Herd Health/Reproduction Management

8:45 3. INHIBITION OF SEXUAL CYCLE BY GONADOTROPIN RELEASING HORMONE IN THE HORSE.
S Montavon, DVM
Limited Status Resident Equine Reproduction

9:00 4. EVALUATION OF SURVEY RADIOGRAPHY, LINEAR TOMOGRAPHY, AND COMPUTED TOMOGRAPHY FOR DETECTING EXPERIMENTAL LESIONS OF THE CRIBRIFORM PLATE IN DOGS.
Clifford Berry, DVM
Resident II Radiology

9:15 5. USE OF AUTOGENOUS BACTERIN AND TOXOID TO CONTROL CORYNEBACTERIUM PSEUDOTUBERCULOSIS INFECTION IN HORSES.
Eric W Davis, DVM
Resident II Large Animal Medicine

9:30 6. SPONTANEOUS DIABETES MELLITUS IN 24 DOGS: INCIDENCE OF TYPE I VERSUS TYPE II DISEASE.
KA Robertson, DVM
Resident II Small Animal Internal Medicine

9:45 **Break** (Refreshments in Primate Center Conference Room)

INHIBITION OF SEXUAL CYCLE BY GONADOTROPIN RELEASING HORMONE IN THE HORSE.

S Montavon, DVM, Veterinary Medical Teaching Hospital ; PF Daels, DVM; B Lasley, PhD; JP Hughes, DVM, VM: Department of Reproduction; University of California at Davis.

High dosage of Gonadotropin Releasing Hormone (GnRH) or GnRH agonist will decrease the sensitivity of the pituitary gland to GnRH and inhibit the secretion of Luteinizing Hormone (LH) and Follicle Stimulating Hormone (FSH). This will result in a decrease in gonadal steroid production. In humans, GnRH implants are used for the treatment of prostatic cancer in men and fertility planning in women. In the horse, the inhibition of the sexual cycle could find application in the control of sexual behavior in the male and female. Three stallions were treated with increasing doses of potent GnRH agonist during a period of 40 days (12.5, 25, and 50 mg/day IM, divided BID). Semen quality and sexual behavior were evaluated during the treatment. Four cycling mares were treated for 40 days (25 mg/day, IM, divided BID), ovarian activity and sexual behavior were monitored. Blood was taken daily for testosterone and LH in stallions and for progesterone and LH in mares, also urine estrogens were analyzed in mares. In stallions, following an initial rise in LH, no change in semen quality or sexual behavior was observed during treatment. In three out of 4 mares, there was evidence that GnRH agonist treatment inhibited ovulation. However, the inhibition was inconsistent and occurred at different times of treatment. It is concluded that GnRH agonist administration at the dose used (which is higher than what is effective in other species) is not an effective method to suppress sexual behavior in the stallion. In the mare, it can be used to inhibit ovulation, however, high dosages of GnRH are required and results are still unpredictable.

REPRODUCTIVE PHYSIOLOGY OF THE MARE
PHISIOLOGIE DE LA REPRODUCTION CHEZ LA JUMENT
FORTPFLANZUNGSPHYSIOLOGIE DER STUTE

STEPHANE MONTAVON, DVM, DR. MED. VET.
RESIDENT IN EQUINE REPRODUCTION

Veterinary Medical Teaching Hospital and Department of Reproduction, School of Veterinary Medicine University of California Davis

INHIBITION OF THE SEXUAL CYCLE BY GONADOTROPIN RELEASING HORMONE IN THE HORSE

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INTRODUCTION

THE AIM OF THIS STUDY WAS TO DOWNREGULATE REPRODUCTIVE FUNCTIONS IN STALLIONS AND MARES USING HIGH DOSES OF

GnRH-ANALOGUE

PRACTICAL APPLICATION:

CONTROL OF SEXUAL BEHAVIOR DURING PERFORMANCE (DRESSAGE, JUMPING, RACING)

DEFINITION

DOWNREGULATION IS THE PARADOXICAL DECREASE OF FUNCTION IN RESPONSE TO CONSTANT STIMULATION

MECHANISM:

CONTINUOUS EXPOSURE TO HIGH CONCENTRATION OF GnRH-ANALOGUE WILL RESULT IN:

- A DECREASE OF THE PITUITARY RESPONSIVENESS TO GnRH DUE TO A DECREASE OF AVAILABLE GnRH RECEPTORS
- A DECREASE IN CIRCULATING LH AND FSH
- A DECREASE IN GONADAL STEROIDS PRODUCTION

EXPERIMENTAL PROTOCOL: STALLIONS

1. THREE STALLIONS WITH NORMAL SEXUAL BEHAVIOR AND KNOWN FERTILITY WERE USED

2. DAILY BLEEDING FOR LH AND TESTOSTERONE ANALYSIS

3. WEEKLY EVALUATION OF SEXUAL BEHAVIOR AND SEMEN QUALITY

EXPERIMENTAL PROTOCOL: STALLIONS

4. TREATMENT SCHEDULE:

- PRETREATMENT PERIOD: 5 DAYS / BLOOD COLLECTION AND FERTILITY EVALUATION
- TREATMENT PERIOD:
  - 5 DAYS / 12.5 mg GnRH-ANALOGUE IM
  - 10 DAYS / 25 mg GnRH-ANALOGUE IM
  - 15 DAYS / 50 mg GnRH-ANALOGUE IM
- POSTREATMENT PERIOD: 5 DAYS / BLOOD COLLECTION AND FERTILITY EVALUATION

EXPERIMENTAL PROTOCOL: MARES

1. FOUR MARES WITH KNOWN REGULAR OVARIAN CYCLICITY WERE USED
2. DAILY BLOOD COLLECTION FOR LH, PROGESTERONE AND ESTROGEN CONJUGATES ANALYSIS
3. DALIY RECTAL PALPATION DURING ESTRUS
4. EVERY OTHER DAY RECTAL PALPATION DURIG DIESTRUS
5. TEASING EVERY OTHER DAY

EXPERIMENTAL PROTOCOL: MARES

6. TREATMENT SCHEDULE:

- PRETREATMENT PERIOD: BLOOD COLLECTION AND DAILY RECTAL PALPATION UNTIL OBSERVED OVULATION

- TREATMENT PERIOD: FIRST DAY OF TX ON DAY 8 POST OV.
  LENGTH OF TX: 40 DAYS / 25 mg GnRH-ANALOGUE IM

- POST-TREATMENT PERIOD: BLOOD COLLECTION AND DAILY RECTAL PALPATION UNTIL OBSERVED OVULATION

RESULTS FOR STALLIONS

1. NO CHANGE IN BEHAVIOR

2. NO CHANGE IN SEMEN QUALITY

3. NO SIGNIFICANT CHANGES IN LH AND TESTOSTERONE CONCENTRATIONS

RESULTS FOR MARE # 1

- IN THIS MARE, TREATMENT RESULTED IN INHIBITION OF FOLLICULOGENESIS
- NO ESTROUS BEHAVIOR WAS OBSERVED DUEING TX
- OVULATION OCCURED ON DAY 16 AFTER END OF TX RESULTING IN AN INTEROVULATORY PERIOD OF 68 DAYS
- ALL HORMONES WERE DECREASED

RESULTS FOR MARES # 2 AND # 3

- OVULATION OF THE DOMINANT FOLLICLE WAS NOT BLOCKED
- ESTROUS BEHAVIOR AND OVULATION OCCURED AT THE EXPECTED TIME
- AFTER OVULATION (DURING TX) FOLLICULOGENESIS WAS BLOCKED. OVULATION OCCURED ON DAY 18 / DAY 18 AFTER THE END OF TX RESULTING IN AN INTEROVULATORY PERIOD OF 36 / 40 DAYS
- ONLY LH RISE WAS BLOCKED

RESULTS FOR MARE # 4

- THIS MARE HAD A RETAINED CORPUS LUTEUM AND THEREFORE THE EFFECT OF GnRH-ANALOGUE COULD NOT BE EVALUATED

- PROGESTERONE WAS INCREASED

CONCLUSIONES:

- HIGH DOSES OF GnRH-ANALOGUE DO NOT INHIBIT SEXUAL BEHAVIOR AND SPERMATOGENESIS FOR THE PERIOD TESTED IN THESE STALLIONS

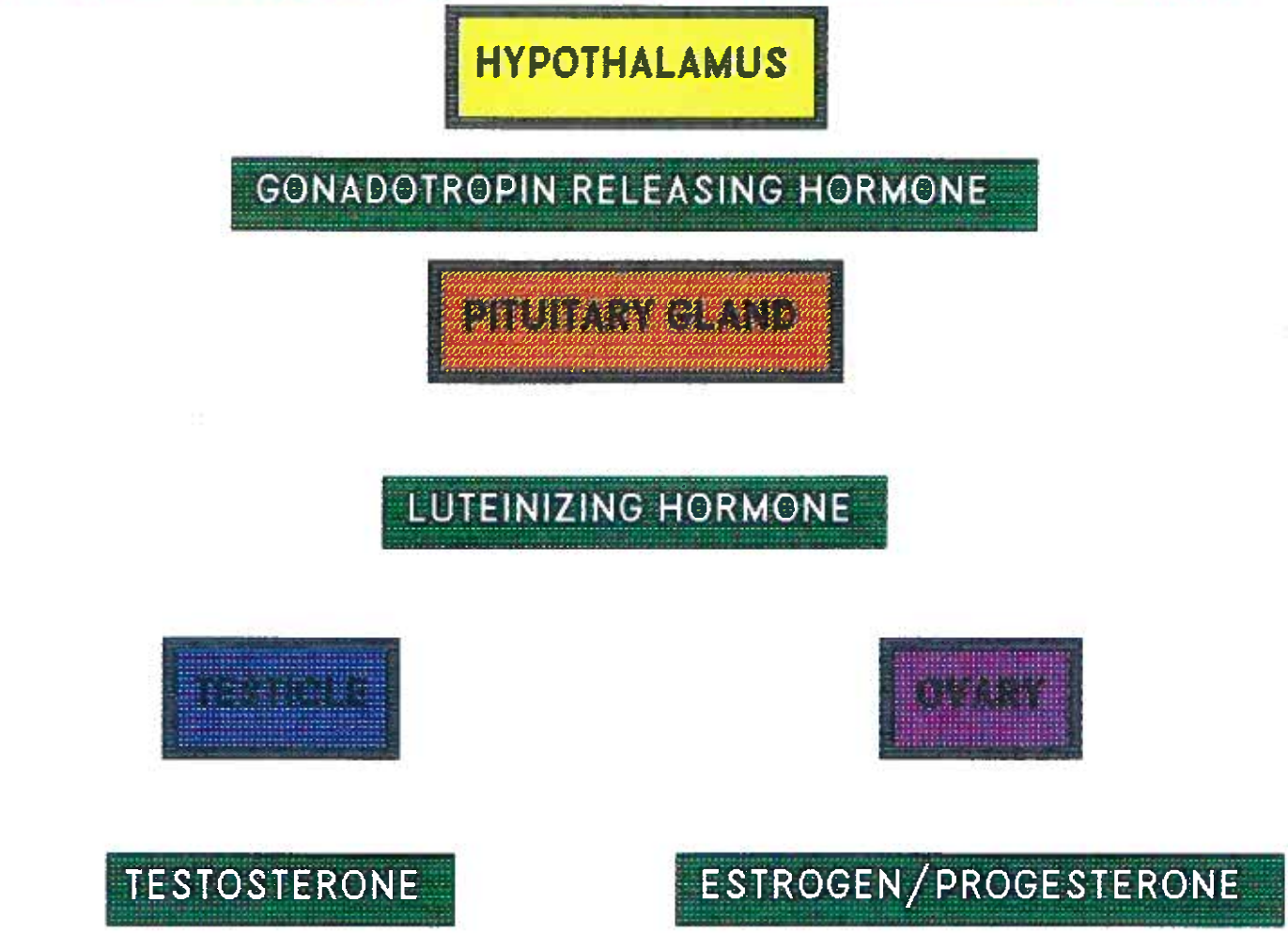
CONCLUSIONS:

- HIGH DOSES OF GnRH-ANALOGUE CAN INHIBIT FOLLICULOGENESIS IN THE CYCLING MARE BUT THE IMMEDIATE EFFECT SEEMS TO BE RELATED TO OVARIAN STATUS

CONCLUSIONS:

- GnRH-ANALOGUE IS NOT A PRACTICAL TREATMENT FOR THE CONTROL OF THE REPRODUCTIVE CYCLE IN THE HORSE. ALTERNATIVE TREATMENTS SUCH AS PROGESTAGENS MAY BE MORE EFFECTIVE AND NEED FURTHER INVESTIGATION

NORMAL SITUATION:



SITUATION OF DOWNREGULATION