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## EMBRYONIC LOSS AND HORMONAL ABORTION PROPHYLAXIS IN THE MARE BY PROGESTERONE, HCG AND VITAMIN E TREATMENT.

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### Abstract.

The reproductive ability in mares is lower than that of other species. The strong correlation between the progesterone concentration in blood (P4) and the evolution of the pregnancy could be one of the main factors influencing their reproductive ability. The primary *corpus luteum* and “secondary CL” are the only source of progesterone production. The combined treatment of hormones and vitamins was applied in mares, in order to prevent abortion. One farm with 7 mares was selected, where only 3 parturitions were obtained during the period 2006-2007. The hormonal treatment consisted of: Medroxyprogesterone acetate, 150 mg (Depoprovera 150<sup>®</sup>, Upjohn Company, USA), hCG 1500 U.I (Corulon<sup>®</sup>, Intervet, Italia S.r.l.) and 150 mg Vitamin E (Vitalene E<sup>®</sup> - Fatro S.p.a., Italia), intra muscular injections. This treatment began 15 days after the ovulation and was repeated every 2 weeks until the 300<sup>th</sup> day into the pregnancy phase. Excellent results were obtained; 6 mares had normal pregnancy and parturition. Only one mare aborted 6 months after the insemination. So the progress of the reproductive ability during two years is higher because of the hormonal treatment (3/7 & 6/7 or 43% & 86%), (P>0.05). These results indicate that the periodical use of the hormonal treatment improves the reproductive ability in mares.

**Keywords:** Abortion; Corpus luteum; endometrial cups; Progesterone; Mare.

### 1. Introduction

The mares are polyestral seasonal species. They exhibit their reproductive activity in certain months (season) of the year according to their geographical position (Photoperiod), [7],[6]. In, Albania this period starts at the beginning of spring from March to April; during this period the reproduction activity is extremely high. This activity decreases After this period and increases again from September to October it . The mares don't display sexual activity (anoestrus). during

November-January, The reproductivity of males compared to other animals is lower according to different studies. It might be due to many different reasons, but the main reason is the biological feature of the pregnancy development. The mares display estrus after the parturition (7-15 days). It is supposed that the fertilizing ability is high, but the pregnancy fails from 10 to 50 % of cases. The embryonic or fetal deaths cause a big economic loss in this species. The risk of pregnancy failure exists during the whole period. However, the most dangerous part is

during the period from the 30th week to the 45th week of pregnancy. [3], [13], [6], [11], [4]. The pregnancy in mares needs high levels of progesterone, which is produced from the primary and secondary *corpus luteum*. The regression of the *corpus luteum* makes the “embryon hungry” for progesterone. Meanwhile, the formation of secondary corpus luteum is the main source of progesterone. The variation of P4 during this period risks the interruption of the pregnancy causing embryonic death. [10],[13]. The vitamin E plays the role of an antioxidant and anti-abortive [1]. Therefore, a special treatment was implemented in order to prevent the embryonic death.

## 2. Material and Methods

This study was performed during two years (2006 to 2008) in a farm of breeding horses. 7 mares aged from 5-15 years old were selected for treatment. Because of the limited number of mares, only the experiment group was established and the treatment results were compared with the parturition of one year ago. The mares have been treated frequently with hormonal-vitamins preparations. The treatment started 15 days after the ovulation and it was repeated every 2 weeks until the 300th day of the pregnancy. The treatment consisted on the use of Medrossiprogestosterone acetate, 150 mg (Depoprovera150®, Upjohn Company, USA), HCG 1500 U.I (Corolon®, Intervet, Italia S.r.l.), and 150 mg Vitamin E (Vitamine E® - Fatro S.p.a, Italia) intra

muscular injections. The aim of the study was to evaluate the efficiency of the above substances to prevent abortion and to stimulate a normal pregnancy in mares.

## 3. Results and Discussion

During the period 2006-2007, 7 mares of the experiment group had only 3 parturitions or 43 %. The mares were inseminated during March, April, and May. Three mares were inseminated in March, 3 mares in April, and only one mare in May. The pregnancy of the inseminated mares was completely normal after the medical treatment during 2008. These mares had normal parturitions. They gave birth to 6 healthy foals or 86 %, only one 1 mare failed in the 6th month of its pregnancy (14 % of the group). The records are presented on the table below:

The results indicate that the reproductive ability is increased in treated mares. These mares have had normal pregnancy 50% higher than the last year.

These are the first reported data from Albania. The results presented here, coincide with a range of works realised in this field. [8], [5].

The progesterone is considered as a critical factor in the development of pregnancy. The activity of this hormone is based on its direct connection with its own specific receptors that are localised in foetal membrane [10]. The circulation level of progesterone increases in case of P4 injection, fulfilling its shortage resulting

from the regression of the primary corpus luteum. On the other hand the injection of the HCG accelerates the ovulation or the luteinisation of the follicles from 37 to 45 days after the fertilization, increasing the secondary sources of the progesterone [9], [12], [2], [5], [4]. Also, vitamin E interferes with the improvement of the normal

hormonal profile through its antioxidant abilities [1]. The frequent use of this treatment during the foetal period helps in keeping normal level of progesterone in circulation and normal pregnancy

**Table 1.** The efficiency of the combined treatment P4, HCG and Vitamin E to prevent the abortion in mares.

<i>The Year</i>	<i>No. mares</i>	<i>Pregnant mares 30 days</i>	<i>Pregnant mares 5 months</i>	<i>Pregnant mares 10 months</i>	<i>The mares after the parturition.</i>
<b>2007-2008</b>	7	7 (100 %)	7 (100 %)	6 (86 %)	6 (86 %)

**Table 2.** The comparison of the results before and after the hormonal treatment during these two years.

<i>The year</i>	<i>No. of mares</i>	<i>No. of treated mares</i>	<i>The mares after the parturitions with their foals</i>
2006-2007	7	-	3 (43 %)
2007-2008	7	7	6 (86 %)

#### 4. Conclusion

The methodical hormonal treatment with hormonal and vitamin preparations can prevent the embryonic and foetal death in mares. It is recommended the use of this treatment by farmers.

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