



Effects of age and altrenogest treatment on conceptus development and secretion of LH, progesterone and eCG in early-pregnant mares

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Abstract

The treatment of early pregnant mares with a history of repeated early embryonic loss with the progestin altrenogest has become routine; however no controlled studies on the efficiency of altrenogest to prevent embryonic losses are available so far. In the present study, we have investigated effects of altrenogest treatment in mares on conceptus development and the secretion of LH, progesterone, and eCG until day 100 of pregnancy. In addition, differences related to age of mares were assessed. Mares were treated with altrenogest (0.044 mg/kg per os once daily) or sunflower oil (10 ml per os once daily) from day 6 to day 100 after ovulation. Blood samples for analysis of LH, progesterone, and eCG were collected. The size of the embryonic vesicle and embryo/fetus was determined by ultrasound. No difference in the per cycle pregnancy rate between altrenogest-treated (75%) and sunflower oil-treated mares (74%) was detected (n.s.). A significant effect of age but not of altrenogest treatment on mean diameter of the embryonic vesicle was found between days 12 and 22 of pregnancy (e.g. day 15: control, 4–8 years: 22.9 ± 1.0 mm, >8 years: 22.0 ± 1.7 mm, altrenogest, 4–8 years: 26.1 ± 2.0 mm, >8 years: 20.4 ± 1.0 mm, $P < 0.05$). A significant effect of age and treatment on size of the embryo proper between days 30 and 45 was detected ($P < 0.05$). In the control group but not in the altrenogest group, size of the embryo proper respective fetus was negatively correlated with age of the mares (day 30: $r = -0.834$, $P < 0.05$; day 35: $r = -0.506$, $P < 0.05$). Plasma concentrations of LH and progesterone were neither affected by age nor by treatment of mares, but significant effects of age and altrenogest treatment on eCG concentrations between days 40 and 130 were detected ($P < 0.05$). The present study demonstrates for the first time a positive influence of altrenogest-treatment on a retarded development of the embryo respective fetus around the beginning of placentation in mares older than 8 years.

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1. Introduction

Early pregnancy loss until approximately day 20 after ovulation is a major reason for low reproductive

efficiency in subfertile mares [1,2]. Treatment of early pregnant mares with a history of repeated early embryonic loss with the progestin altrenogest has become routine [3]. Altrenogest has been shown to efficiently maintain pregnancy in ovariectomized embryo recipient mares until the onset of placental progestin synthesis [4,5]. Similarly, altrenogest prevents embryonic loss in early pregnant mares after ovariectomy or induction of luteoly-

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