Effects of subcutaneous melatonin implants and short-term intravaginal progestagen treatments on estrus induction and fertility of Kivircik ewes on seasonal anestrus

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Abstract

The aim of this study was to compare the efficacy of estrus induction and fertility by using subcutaneous melatonin (MEL, T1) and short-term intravaginal medroxyprogesteronacetate plus pregnant mare serum gonadotropin treatments (sMAP+eCG, T2) in ewes on seasonaly anestrus. In this study, 105 mature clinically healthy Kivircik ewes in anestrus season and 4 rams were used. After synchronization applications, ewes exhibiting estrus signs were hand-mated with rams known to be fertile. Blood samples were collected at different times in order to determine progesterone (P4) concentrations. Results showed that estrus manipulation protocols induced significant improvement in pregnancy rate. All the fertility results obtained with the sMAP+eCG or MEL groups were similar, in seasonal anestrus. The efficacy duration of P4 in the MEL group was longer than that in short-term progestagen group. Plasma P4 concentrations was significantly different between the first (I) and last (III) measurement days (p<0.01). Increase in P4 concentration in T2 group was faster than that in T1 group, and blood P4 concentrations at higher levels could successfully be achieved by using any of the protocols in this study during the seasonal anestrus. In conclusion, according to the results obtained, the hormone application groups received very high estrus response. In addition, the twin ratio was found to be higher in T1 group compared to those determined in the other groups (T2 and Control group). Furthermore, plasma P4 concentrations and high birth rates were obtained in ewes in T1 and T2 groups. These procedures can be considered a good alternative to traditional procedures due to its flexibility under field conditions.

Key words: ewes, fertility, melatonin, short-term progesterone, seasonality