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EXOGENOUS MELATONIN IMPROVES EMBRYO VIABILITY OF UNDERNOURISHED EWES DURING SEASONAL ANOESTRUS

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This study investigated the effect of exogenous melatonin and undernutrition on embryo viability in postpartum ewes during seasonal anoestrus. At parturition, 36 adult Rasa Aragonesa ewes were assigned into two groups: treated (+MEL) or not (-MEL) with a subcutaneous implant of melatonin (Melovine®, CEVA) the day of lambing. After 45 days of suckling, lambs were weaned, ewes synchronized with intravaginal pessaries and fed to provide 1.5 (Control, C) or 0.5 (Low, L) times daily maintenance requirements. Therefore, ewes were divided into four groups: C-MEL, C+MEL, L-MEL and L+MEL. At oestrus (Day=0) ewes were mated and embryos were recovered by mid-ventral laparotomy on Day 5 and classified according to their developmental stage and morphology. No effect of diet or melatonin treatment was observed either on ovulation rate or number of recovered ova per ewe. Melatonin treatment improved significantly the number of fertilized embryos/corpus luteum (CL) (-MEL: 0.35±0.1, +MEL: 0.62±0.1; P=0.08), number of viable embryos/CL (-MEL: 0.23±0.1, +MEL: 0.62±0.1; P<0.01), viability rate (-MEL: 46.6%, +MEL: 83.9%; P<0.05) and pregnancy rate (-MEL: 26.3%, +MEL: 76.5%; P<0.05). Particularly, exogenous melatonin improved embryo viability in undernourished ewes (L-MEL: 40%, L+MEL: 100%, P<0.01). In conclusion, this study shows that melatonin treatment, improves ovine embryo viability during anoestrus particularly in undernourished postpartum ewes.

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