Embryo stage, quality and number of ovulations in recipient mare affect pregnancy rates in embryo transfer recipient mares

H.G. Pedersen, M. Niklasson, A. Vullers, M. Christoffersen

Section for Veterinary Reproduction and Obstetrics, Department of Large Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Dyrlægevej 68, DK-1870 Frederiksberg, Denmark; Animal Embryo Center, Boekhorstweg 2, 6105 AD Maria-Hoop, Holland

The aim of the study was to investigate whether stage and quality of embryos, and number of ovulations in recipient mare influenced pregnancy outcome in an embryo transfer program. Embryos (n = 181) from 76 donor mares aged 3-25 years were recovered 8 to 9 days after ovulation. The embryos were classified according to the International Embryo Transfer Society (IETS) manual (Stages: 4 - morula, 5 - early blastocyst, 6 - blastocyst and 7 - expanded blastocyst; Quality: excellent or good and fair). Warmblood recipient mares aged 4 to 15 years were scanned every second day for ovulations and embryos were transferred on days 2 to 7 after ovulation. The recipient mares were scanned for pregnancy on day 18 after ovulation. The overall pregnancy rate on day 18 was 74% (134/181). Pregnancy rates in recipients that had embryos transferred at day 2, 3, 4, 5, 6 and 7 days after ovulation were 100% (n=1), 62% (n=8), 73% (n=44), 74% (n=57), 77% (n=61) and 70% (n=10), respectively (P>0.05). Good quality embryos at stages 5, 6 or 7 resulted in higher pregnancy rates (79%; 110/139) than fair quality embryos at stages 4, 5, 6, or 7 (57%; 24/42) (P = 0.008). Recipient mares with two or more ovulations became pregnant at a higher rate (86%; 37/43) than recipients with a single ovulation (70%; 97/138) (P = 0.047). In conclusion, embryos graded as excellent or good resulted in higher pregnancy rates than embryos graded as fair, and recipient mares with multiple ovulations became pregnant at a higher rate than mares with one ovulation.

Keywords: Embryo transfer, mare, double ovulation