

PREGNANCY OF CRYOPRESERVED OVINE EMBRYOS AT DIFFERENT DEVELOPMENTAL STAGES

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Abstract

BACKGROUND: Developmental stage and cryopreservation method have significant impact on the pregnancy rate after transfer of embryos produced in vivo. **OBJECTIVE:** To determine the pregnancy outcomes from ovine embryos cryopreserved at different developmental stages. **MATERIALS AND METHODS:** Embryos at different developmental stages were obtained from donor ewes through simultaneous estrus treatment and laparoscopic artificial insemination. Embryos, either cryopreserved via vitrification or slow freezing method, were implanted into recipient ewes. The pregnancy rate was determined 35 days after transfer. **RESULTS:** The pregnancy rate of developing embryos increases after transfer from the morula stage, early blastocyst to expanded blastocyst stages (64.9%, 73.9% and 81.3%, respectively). However, cryopreservation significantly decreases the pregnancy rate of embryos at all three developmental stages, and there is no significant difference among developmental stages (43.9%, 43.7%, 52.9%, respectively). There is also no significant difference in the pregnancy rate between slowly-frozen embryos and vitrified embryos. **CONCLUSION:** The pregnancy outcomes of embryo transfer is better at the expanded blastocyst stage than at earlier stages. However, no difference is observed in the pregnancy rate of embryos at different developmental stage after cryopreservation, either by slow freezing and vitrification. Cryopreservation methods for ovine embryos, both slow freezing and vitrification, need further improvement.

Keywords: ovine; embryo; cryopreserved methods; embryonic stages.

INTRODUCTION

Multiple ovulation, artificial insemination, and embryo transfer are important technologies that shorten the generation interval and enable

faster genetic improvement in the cattle and ovine industry (1). In recent years, embryo transfer research has received more attention in the ovine industry (2). In 2018 and since, European and American countries produced 17,353 ovine