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Pregnancy rate after non-surgical transfer of vitrified pig embryos

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Two important impediments to practical use of embryo transfer (ET) in the swine industry have historically been 1) the difficulties to develop a repeatable method for the long-term preservation of embryos and 2) the low success rate achieved in early experiments on non-surgical ET. Currently, efficient procedures for embryo vitrification and for non-surgical ET have been developed. The objective of this preliminary study was to determine the pregnancy rate after non-surgical deep intrauterine transfer of vitrified embryos. Donors (Large-White hyperprolific gilts; n=21) were artificially inseminated 12 and 24h after the first detection of oestrus and slaughtered at day 5-5.5 after the first insemination. Embryos were recovered by flushing the uterine horns with saline solution (0.9% NaCl) with 2% newborn calf serum. Only normal un-hatched blastocysts were vitrified using the procedure described by Berthelot et al., 2000 (Cryobiology 41, 116-124). Warming of the embryos was performed directly by plunging the straws (OPS) in 400 μl of TCM 199 HEPES medium supplemented with 0.13 M sucrose contained in a 1 ml syringe. A pool of 20 embryos from 2-3 different donors were transferred per recipient. Meishan cyclic gilts (n=10) or primiparous sows (n=1) were used as recipients. Non-surgical transfer were conducted asynchronously (-24h) with recipients relative to the age of the embryos by insertion of a flexible catheter (length 1.20 m. outer diameter 4 mm, inner diameter 0.7 mm) in the depth of a uterine horn (Martínez et al., 2002; Theriogenology 57, 549). It was possible to insert the catheter in 8 out of 11 recipients (72.7%). Five of the 8 recipients (62.5%) were ultrasonographically diagnosed pregnant at Day 23 after transfer. These recipients are currently pregnant (Day 55-70 after transfer). In conclusion, we report the first pregnancies achieved by non-surgical transfer of vitrified/warmed pig embryos. Further experiments are underway to confirm these results with a higher number of animals. Supported by SENECA (01033/CV/99), CDTI (01/0317).