DOES POSTPARTUM INTERVAL INFLUENCE THE SUCCESS OF TRANSCERVICAL UTERINE INSEMINATION IN MERINO EWES? A PRELIMINARY STUDY

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Frozen-thawed ram sperm are able to fertilize ova, but their ability to cross the ewe’s cervix and reach the oviduct is greatly reduced. Frozen-thawed semen must therefore be placed within the ewe’s uterus to achieve acceptable fertility following artificial insemination (AI). Uterine AI is usually performed by injecting semen into the uterine lumen with the aid of a laparoscope. An alternative is transcervical AI (TAI) in which a pipette is passed into the uterus via the cervix. Transcervical AI has been shown to produce similar conception rates to laparoscopic AI when cervical penetration rates (CPR) are high (Buckrell et al. 1992). However, CPRs in Australian Merino ewes are lower (Windsor et al. 1994) than those reported elsewhere.

One possible source of the variation in CPR is the length of the interval between lambing and AI (Buckrell et al. 1992). The aim of this study was to examine the effect of increasing postpartum interval on the CPR (and therefore rate of uterine AI) achieved using TAI in parous Merino ewes.

Five year-old ewes were randomly allocated to 2 groups to permit a series of observations at 3 weekly intervals. The oestrous cycles of the ewes were synchronized before each cervical penetration attempt by 12 to 14 days treatment with 30 mg progestagen sponges (Ovakron, ESP, S. Africa) and the administration of 400 iu of pregnant mare serum gonadotrophin (Pregnecol, Horizon, NSW) at the time of sponge withdrawal. Cervical penetration was attempted 48 to 72 hours after sponge removal at 14, 20 and 26 weeks following the start of lambing in group I ewes and at 17 and 23 weeks for group II ewes. Each group initially contained 30 ewes, but only 14 group I ewes were available by week 26.

TAI was performed according to Halbert et al. (1992). Ewes were restrained in dorsal recumbency and the cervix located with the aid of a tubular speculum. Cervical papillae were grasped with Bozeman forceps and gentle tension used to stabilize and straighten the cervical canal. Passage of the insemination pipette was then attempted. Cervical penetration was considered to have been accomplished if the pipette tip could be passed into the cervical opening to its full length (8.5 cm). Attempts in which the pipette was inserted part-way into the cervix were judged to be unsuccessful.

Rates of cervical penetration achieved at each time point are shown in Table 1. Despite an apparent decrease in CPR with increasing postpartum interval, chi-squared analysis revealed no difference in CPR over time. However, operator experience has been shown to be a factor in the success of TAI (Buckrell et al. 1992), and it is possible that increasing operator expertise may have partially offset any increase in difficulty of cervical penetration over time.

Table 1. Effect of postpartum interval on cervical penetration rates (CPR) in Merino ewes

<table>
<thead>
<tr>
<th>Postpartum interval (weeks from commencement of lambing)</th>
<th>14</th>
<th>17</th>
<th>20</th>
<th>23</th>
<th>26</th>
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<tr>
<td>CPR (%) (proportion)</td>
<td>76.7 (23/30)</td>
<td>66.7 (20/30)</td>
<td>63.2 (12/19)</td>
<td>64.3 (18/28)</td>
<td>57.1 (8/14)</td>
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A longer period of study after lambing by an experienced operator using larger ewe numbers may therefore be required to fully define the effects of increasing postpartum interval on rates of uterine insemination by TAI.