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In Vivo Obtaining of Preimplantational Mouse Embryo from Superovulated Females

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SUMMARY

For the experiments that require a large number of preimplantational embryos, such as morphometric measurements, testing different culture or freezing media, gonadoropins are often administered to females prior to mating to increase the number of oocytes that are ovulated. Pregnant Mare Serum Gonadotropin (PMSG) and is used to mimic the follicle-stimulating hormone (FSH) and human Chorionic Gonadotropine (hCG). The time of administering the hormones is very important for the quality and number of the embryos obtained. The aim of our paper was to test if the moment of starting the hormonal treatment of the mice females is affecting the quality of the embryos recovered. For the experiments, we used 90 mice females NMRI strain, 2 months old, 30 females for each superovulatory treatment. The females were superovulated with 5 IU of PMSG and 5 IU of hCG at 48 hours apart. The animals were kept on a light cycle of 12 hours light and 12 hours dark, form 9^{00} to 21^{00}. The time of starting the hormonal treatment was 13^{00} (two hours before the middle point of the light period, P_1), 15^{00} (middle point of the light period, P_2) and 17^{00} (two hours after the middle point of the light period, P_3). From the females superovulated using P_1, 70% were found with vaginal plug and from 63,3% were recovered embryos. From the females superovulated by P_2 76.7% were found with vaginal plug and from all embryos were recovered. Regarding the females superovulated with P_3, 60% were discovered with vaginal plug and from 56.7% embryos were recovered. The percent of females found with vaginal plug and females that were found with embryos did not differed between the groups (Test χ2a-a $p>0.05$). The mean number of embryos recovered from each female was 8.4±2.62, 20.1±6.69 and 16.6±13.82 for females superovulated after P_1, P_2 and P_3 respectively. In respect to the quality of the embryos recovered from the superovulated females with P_1, 13.8% from the total number of embryos recovered were very good (code1), 7.5% were good (code 2), 6.3 % were satisfactory (code 3) and 72.3% were bad (code 4). From the embryos recovered from females superovulated by P_2, 61,1% were very good (code 1), 18.1% were good quality (code 2), 6.7 % were satisfactory (code 3) and 14% were bad (code 4). The quality of the embryos recovered from females superovulated by P_3 was: 19.8% code 1, 8.8% code 2, 6.7 % code 3 and 64.7% code 4. Statistic analyze of the data showed that for the embryos in very good (code1) and good (code 2) recovered from the females there are significant differences between the P_2 and P_1, P_3 respectively, but between P_1 and P_3 there are no differences (Tukey test).

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