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The Effects of Glucose on Blastulation and Cell Counts of Blastocysts in Mice.

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The aim of this study was to investigate the effect of glucose on embryonic development of mouse embryos. Two cell embryos were recovered from ICR female mice(3~4weeks) at 46~50 hrs after hCG 5 IU injection (mated just after hCG injection) and cultured in 50 ㎛ DMEM droplets supplemented with nothing (control: n=46), glucose 0.5mM (Group A; n=46) or glucose 3.15 mM(Group B; n=46) under mineral oil. All experimental media were supplemented with 20% human follicular fluid. Total blastocyst formation rates was lower (NS) in glucose groups (group A: 52.2% ; B: 47.8%) than control group (60.9%). ZiB rates was the highest ($P<0.05$) in control (47.8%) than those in group A (21.7%) and B (28.3%). ZeB rates were the highest (NS) in group A (30.4%) than those in control (13.0%) and group B (19.6%). Blastocysts, cultured in group B (50.5), had the highest (NS) mean cell number compared with the others (control: 39.2 ; group A: (45.6). The ICM proportion (%ICM of total cells) in blastocysts cultured in group A (20.6%) was the highest (NS) than those of other tested groups (control: 15.2 ; group B: 13.9%). This study shows that a low dose of glucose added to culture medium increases the ICM proportion of blastocysts in mice.

Key words) ***Mouse 2 cell embryo, Glucose, Blastulation, Cell number, ICM proportion***