

Effects of different media on fallopian tube epithelial cells culture and human embryo development

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Abstract

The advantage of fallopian tube epithelial cell (FTEC) co-culture system on development of human embryo has been shown. However, lack of appropriate media for both FTEC and embryo is one of the disadvantages of this system. The aim of the present study was to determine the effects of different culture media on both FTEC and human embryo development. Healthy fallopian tube samples were removed from 19 previously fertile women under 40 ages undergoing total abdominal hysterectomy. Epithelial cell-rich suspension was prepared mechanically and enzymatically and cultured in three different media (DMEM/F12, RPMI-1640 and Ham's F10). After four passages, the cells were cultured on plastic to obtain unpolarised confluent cells, or seeded into matrigel to produce polarized cells for 7 days. Viability of cells during and after passages was evaluated by neutral red and trypan blue vital staining. In addition, 117, 45 and 48 surplus 4-8 cell human embryos were cultured in Ham's F10, RPMI and DMEM/F12 for 120 hours, respectively. Their morphology were assessed daily. Cellular vitality during culture in DMEM/F12 was 100%, which was significantly different from that in RPMI and Ham's F10 (95% and 93%, respectively)($P < 0.05$). However, after cellular proliferation and passages, no significant difference was observed for different media. Moreover, a significantly higher ratio of embryos reached the morula stage in Ham's F10 (79.4%) than RPMI (68.8%) and DMEM/F112 (62.5%)($P < 0.05$). It is concluded that DMEM/F12 was superior to other media during cell proliferation and passage of FTEC. However, after cell passage and during co-culture of embryos with FTEC, Ham's F10 was a more appropriate medium than the other two.

Keywords: Fallopian tube, Co-Culture, Embryo Development, Human, Culture Media.

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