

The development of fertilized human ova to the blastocyst stage in KSOMAA medium: is a two-step protocol necessary?

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Abstract :

Current protocols for the culture of human zygotes to blastocysts use two-step sequential media systems. The efficacy of a one-step system involving potassium simplex optimized medium (KSOMAA) has been investigated. In study 1, development of zygotes from days 1 to 3 in KSOMAA was compared with that for medium P-1. In study 2, embryos were cultured from days 1 to 3 in P-1 followed by culture from days 3 to 5 either in KSOMAA or medium CCM. In study 3, the ability of KSOMAA to support development of embryos from days 1 to 5, without medium renewal, was compared with the sequential media system P-1→CCM. The cell numbers and fragmentation scores of day 3 embryos were distributed similarly following culture in KSOMAA or P-1. Significantly more KSOMAA embryos exhibited cytoplasmic pitting. Blastocyst formation rates were not significantly different whether embryos were cultured in the P-1→KSOMAA or the P-1→CCM systems, or when cultured from days 1 to 5 in KSOMAA without medium renewal or in P-1→CCM. Five babies have been born from nine blastocysts transferred after extended culture in KSOMAA. A one-step protocol involving KSOMAA can be used successfully to culture human zygotes to the blastocyst stage.