

# Early embryo development in a sequential versus single medium: a randomized study

Goedele Paternot\*, Sophie Debrock, Thomas M D'Hooghe and Carl Spiessens

## Abstract

**Background:** The success of in vitro fertilization techniques is defined by multiple factors including embryo culture conditions, related to the composition of the culture medium. In view of the lack of solid scientific data and in view of the current general belief that sequential media are superior to single media, the aim of this randomized study was to compare the embryo quality in two types of culture media.

**Methods:** In this study, the embryo quality on day 3 was measured as primary outcome. In total, 147 patients younger than 36 years treated with IVF/ICSI during the first or second cycle were included in this study. Embryos were randomly cultured in a sequential (group A) or a single medium (group B) to compare the embryo quality on day 1, day 2 and day 3. The embryo quality was compared in both groups using a Chi-square test with a significance level of 0.05.

**Results:** At day 1, the percentage of embryos with a cytoplasmic halo was higher in group B (46%) than in group A (32%). At day 2, number of blastomeres, degree of fragmentation and the percentage of unequally sized blastomeres were higher in group B than in group A. At day 3, a higher percentage of embryos had a higher number of blastomeres and unequally sized blastomeres in group B. The number of good quality embryos (GQE) was comparable in both groups. The embryo utilization rate was higher in group B (56%) compared to group A (49%).

**Conclusions:** Although, no significant difference in the number of GQE was found in both media, the utilization rate was significantly higher when the embryos were cultured in the single medium compared to the sequential medium. The results of this study have a possible positive effect on the cumulative cryo-augmented pregnancy rate.

**Trial registration number:** NCT01094314