Does Multinucleation Correlate to Direct and Reverse Cleavage in Day 2 Cleavage Stage Embryos?
A Time-lapse Analysis.

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Introduction and Aim

Abnormal cleavage behaviour (reverse and direct cleavage) and multinucleation have been associated with aneuploidy and low implantation rates. The objective of this study was to determine the incidence of multi-nucleation and whether it correlates with reverse and direct cleavage and their significance to blastocyst formation.

Materials and Methods

- Retrospective study of time lapse ICSI embryos
- Sequential media (Sage, Origio UK)
- Morphokinetic analysis

Results

243 out of 1279 embryos (19%) embryos were multinucleated. 5.3% of these reverse cleaved and 6.2% direct cleaved. Embryos that showed direct cleavage divisions and multinucleation did not reach the blastocyst rate as readily ($p<0.05$).

Reverse cleavage:
reduction in number of cells during cytokinesis (2-8 cell stage)

Direct cleavage:
abnormal first and second mitotic embryo cell divisions (1 to 3 cell stage or 2 to 5 cell stage)

Multinucleation:
When a blastomere has 2 or more nuclei

1

CONCLUSION

Multinucleation is not correlated with reverse or direct cleavage.

2

CONCLUSION

Multinucleation and reverse cleavage do not affect blastocyst formation.

3

CONCLUSION

Direct cleavage and multinucleation can lower blastocyst rate.