P93 - CHARACTERISING DIRECT UNEQUAL CLEAVAGE (DUCs) USING CHLOE-EQ

Edson Lo Turco[2], Tayara M. V. Tavares[2], Adriana Brualla[3], Alexa Zepeda[3], Cristina Hickman[3]

[1]Fertility, Department of Embryology and IVF laboratory, São Paulo, Brazil.
[2]EmbrioLógica, São Paulo, Brazil.
[3]Fairtility, Israel

Background

Non-DUC Normal Division

Direct unequal cleavage DUCs

Reduced embryo viability: blastulation, ploidy & implantation

Objectives

To assess whether DUCs:
- Are associated with oocyte quality
- Have an impact on
  - → multinucleation or
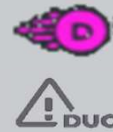 - → blastocyst quality.

Methods

Embryologist

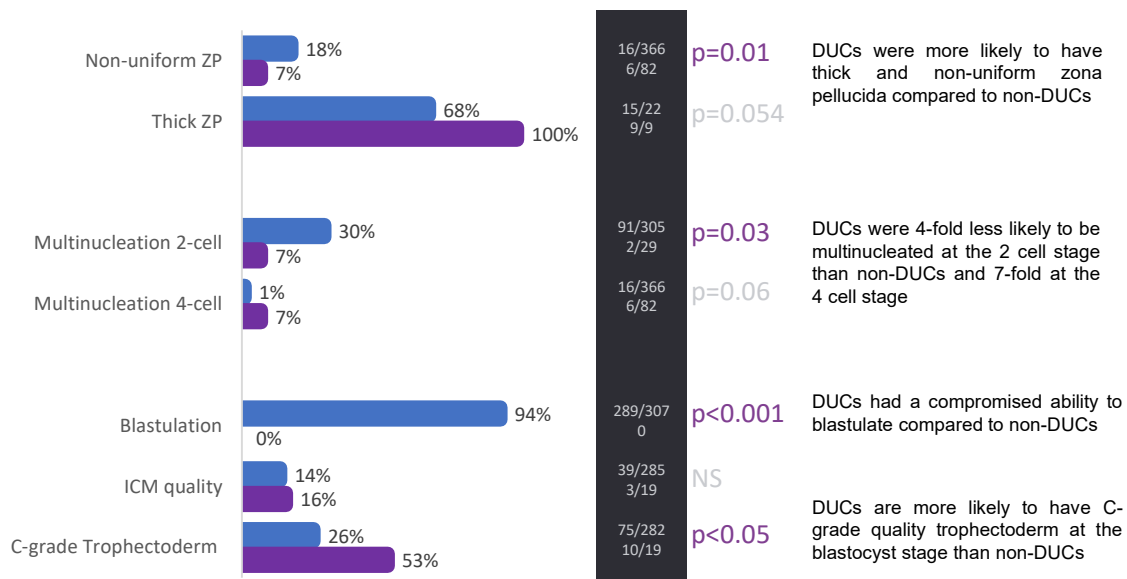MANUALLY ASSESSED
oocyte quality & multinucleation

Chloe

⚠ DUC

AUTOMATICALLY ASSESSED
DUCs, Morphokinetics, blastulation, blastocyst quality, CHLOE-EQ score

Results

- Patient age was not associated with DUCs (p=0.4)

- DUCs were not associated with the presence of a smooth endoplasmic reticulum (SER), or whether the oocyte was dark, granular, homogen, had an inclusion or was normal (NS)

Measure	Non-DUC	DUC	Counts	p-value	Description
Non-uniform ZP	18%	7%	16/366, 6/82	p=0.01	DUCs were more likely to have thick and non-uniform zona pellucida compared to non-DUCs
Thick ZP	68%	100%	15/22, 9/9	p=0.054	
Multinucleation 2-cell	30%	7%	91/305, 2/29	p=0.03	DUCs were 4-fold less likely to be multinucleated at the 2 cell stage than non-DUCs and 7-fold at the 4 cell stage
Multinucleation 4-cell	1%	7%	16/366, 6/82	p=0.06	
Blastulation	94%	0%	289/307, 0	p<0.001	DUCs had a compromised ability to blastulate compared to non-DUCs
ICM quality	14%	16%	39/285, 3/19	NS	DUCs are more likely to have C-grade quality trophectoderm at the blastocyst stage than non-DUCs
C-grade Trophectoderm	26%	53%	75/282, 10/19	p<0.05	

Conclusion

- Given the growing evidence that DUCs have compromised viability,
- it is important to understand the biology in how DUCs impact embryo selection.
- The ability to use AI to detect DUCs to avoid such important information being missed during embryo selection can assist embryologists in maximising their efficacy of embryo selection.

Corresponding Author: @.com.br