PATERNAL CONTRIBUTION TO EMBRYO MORPHOKINETICS IN A TIME-LAPSE INCUBATOR SYSTEM

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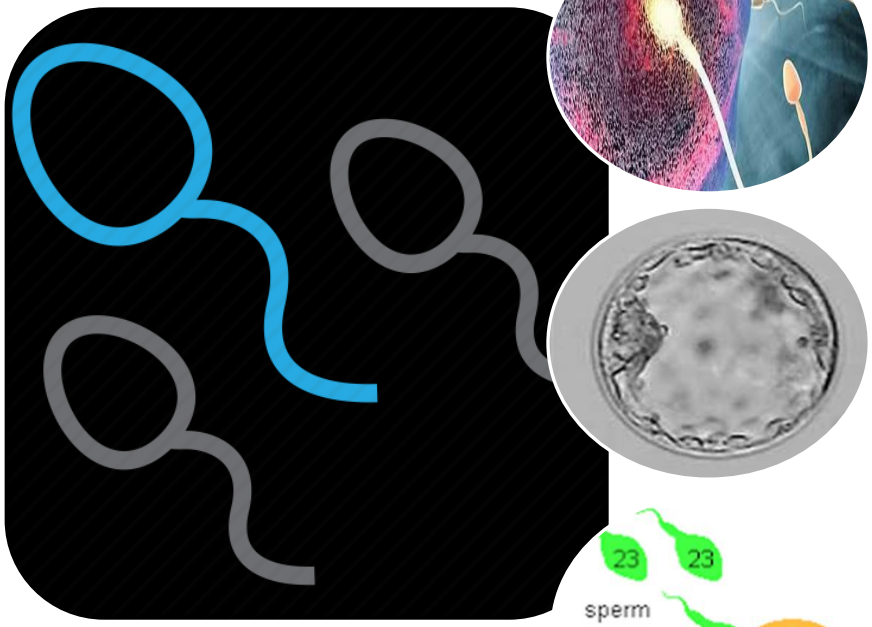
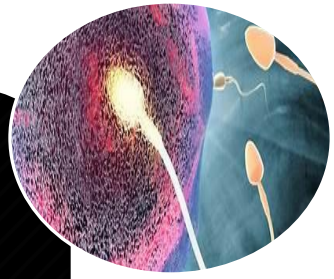
FERTILITY®
MEDICAL GROUP

INTRODUCTION

Paternal factors





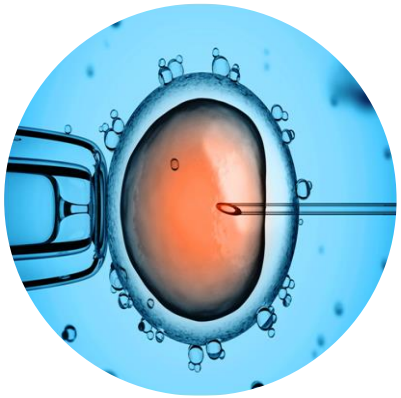
Epigenetic regulation

Embryonyc development

Haploid genome

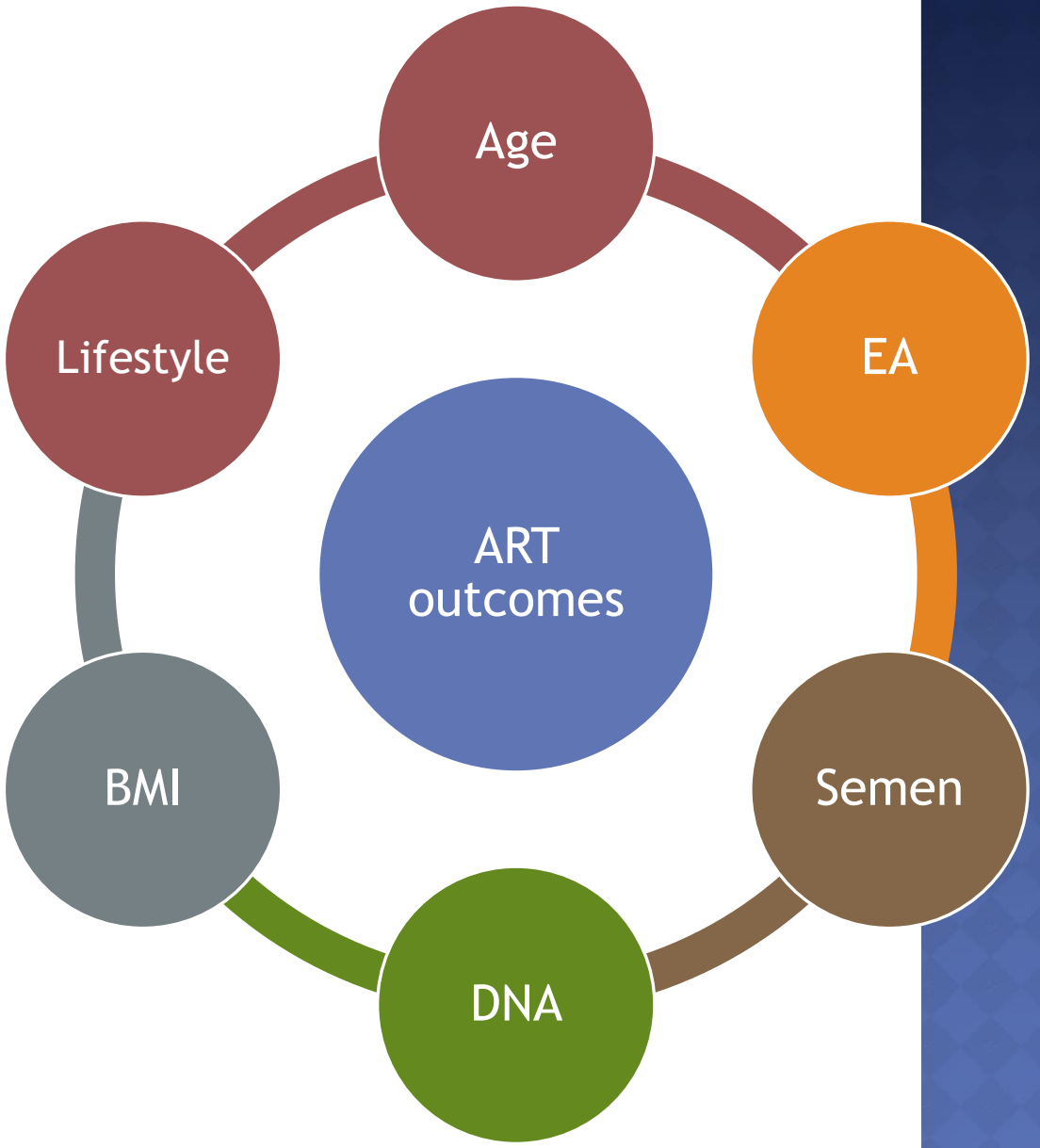
Misleading concept

INTRODUCTION

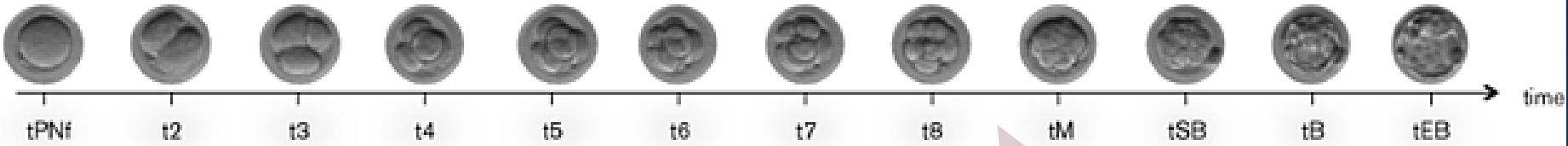


Male gamete

Natural selection



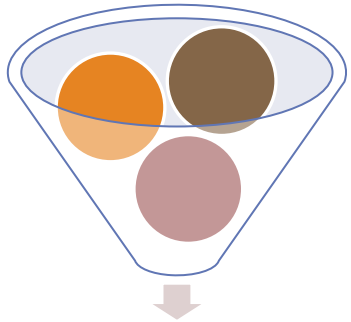
INTRODUCTION



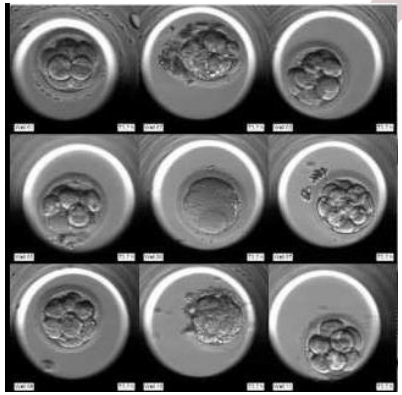
Non-invasive observation

Stable culture conditions

Algorithms

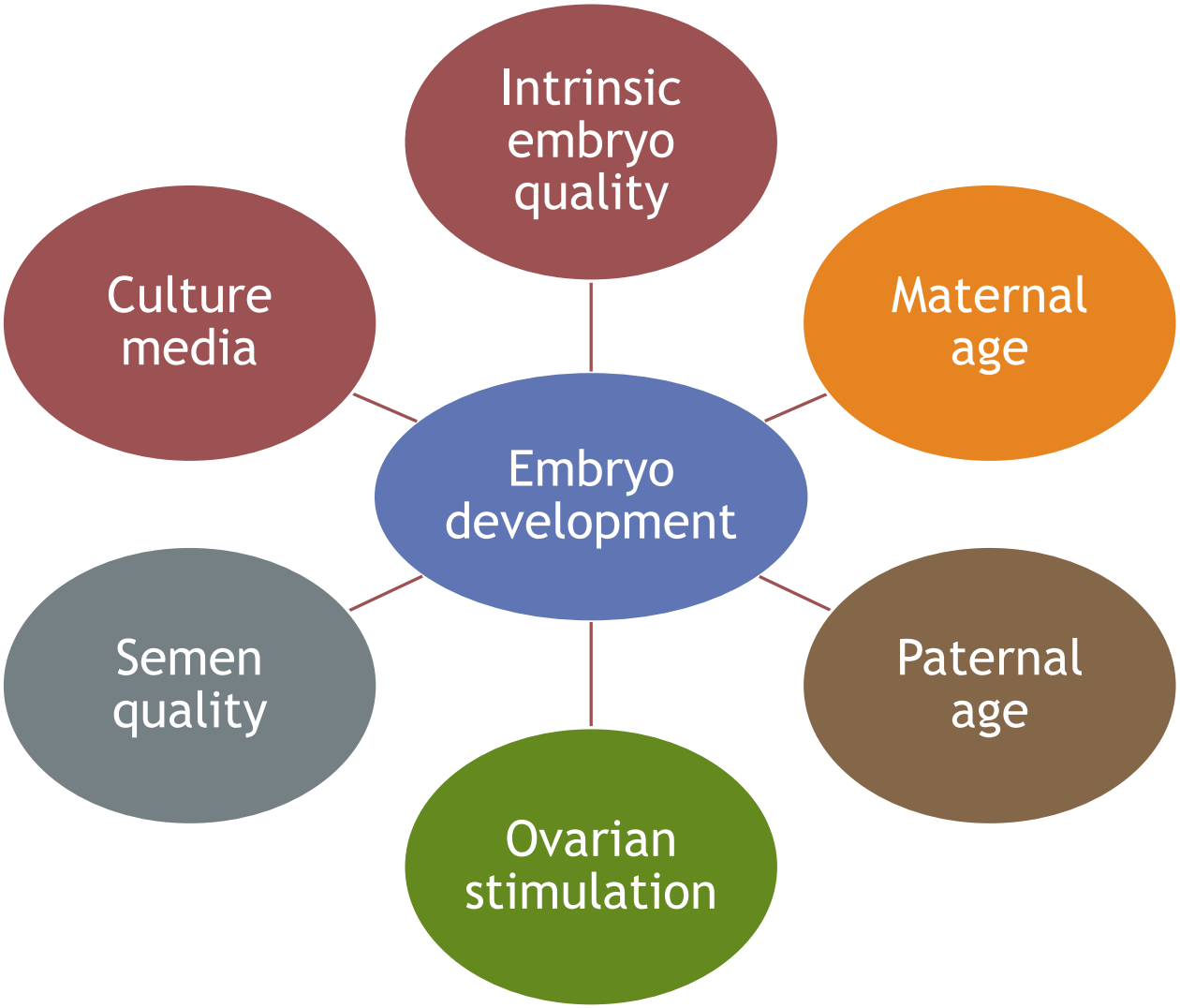


Embryo selection

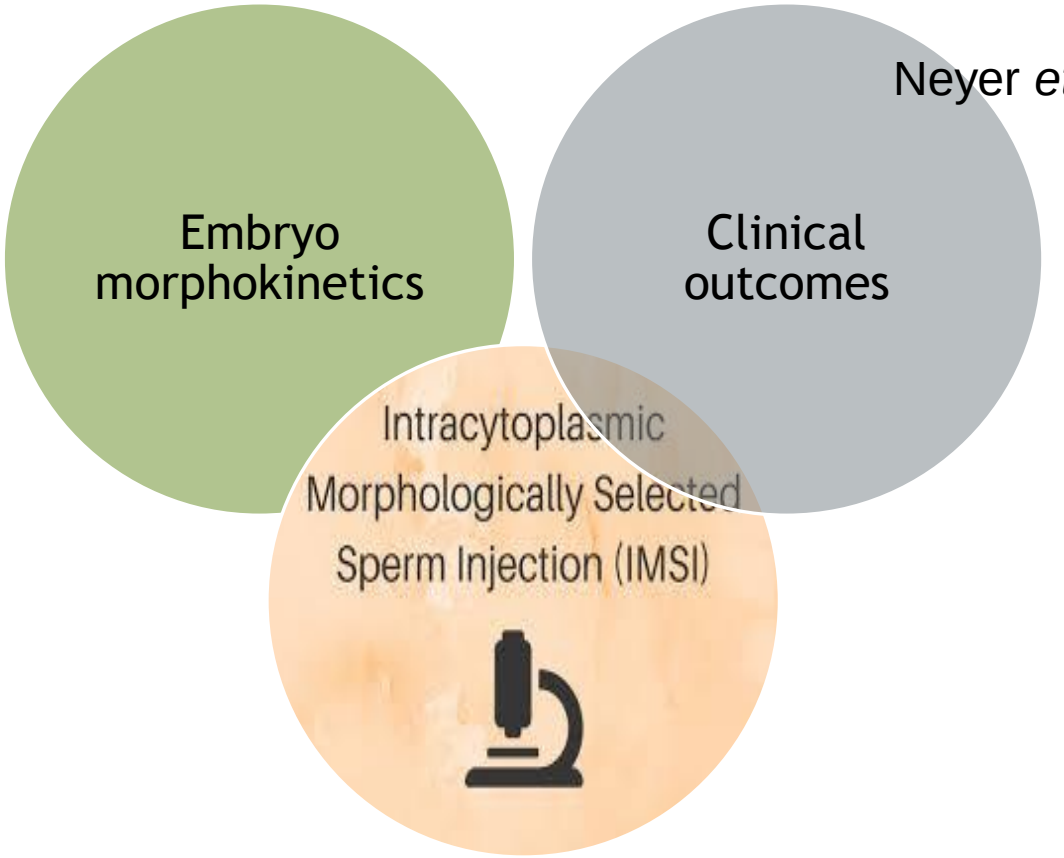


Prediction of embryo implantation

INTRODUCTION



INTRODUCTION



Neyer *et al.* 2015, Mangoli *et al.* 2019

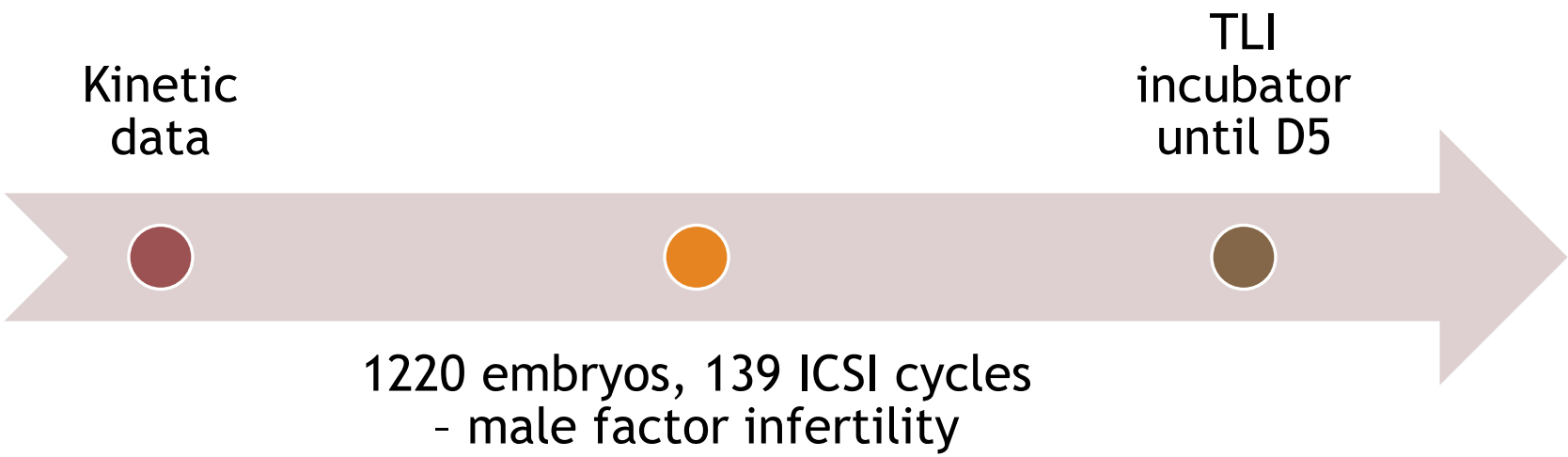
Studies	Paternal factors	Morphokinetic events	Scarce

OBJECTIVE

To investigate the impact of paternal age and semen quality on embryo morphokinetics events in a TL-imaging incubator

MATERIAL AND METHODS

Cross-section	Private-university affiliated IVF center
	Mar-Nov/19



MATERIAL AND METHODS

COS and OR

- r-FSH
- GnRH antagonist
- r-hCG
- OR 35h later

MATERIAL AND METHODS

ICSI and Embryo culture

- According to Palermo et al. 1992
- Injected oocytes individually cultured until D5
- TL-monitored incubator (EmbryoScope+)
- 11 focal planes, every 10’

MATERIAL AND METHODS

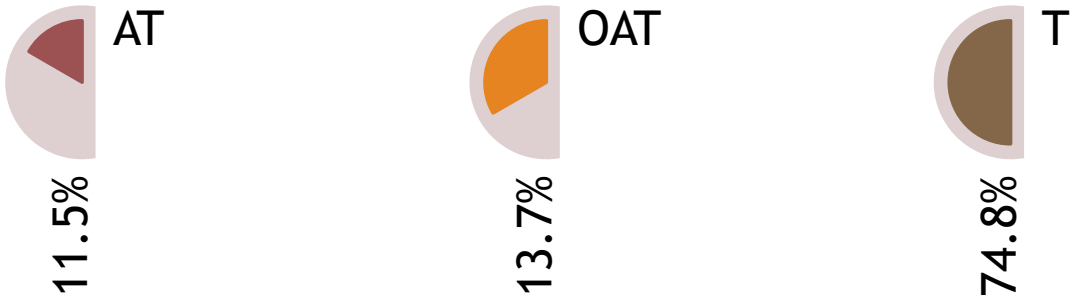
Data analysis	Multivariate regression analysis, adjusted for maternal age
	Semen parameters, EA length and male age: independent
	Kinetic markers, implantation rate and pregnancy achievement: dependent
	Regression coefficient (B) or exponetiation of B (ExpB) with 95% CI, and p-value (<0.05)

RESULTS

Variable	Mean ± SD
Female age (years)	37.7 ± 3.8
Female BMI	24.7 ± 4.0

RESULTS

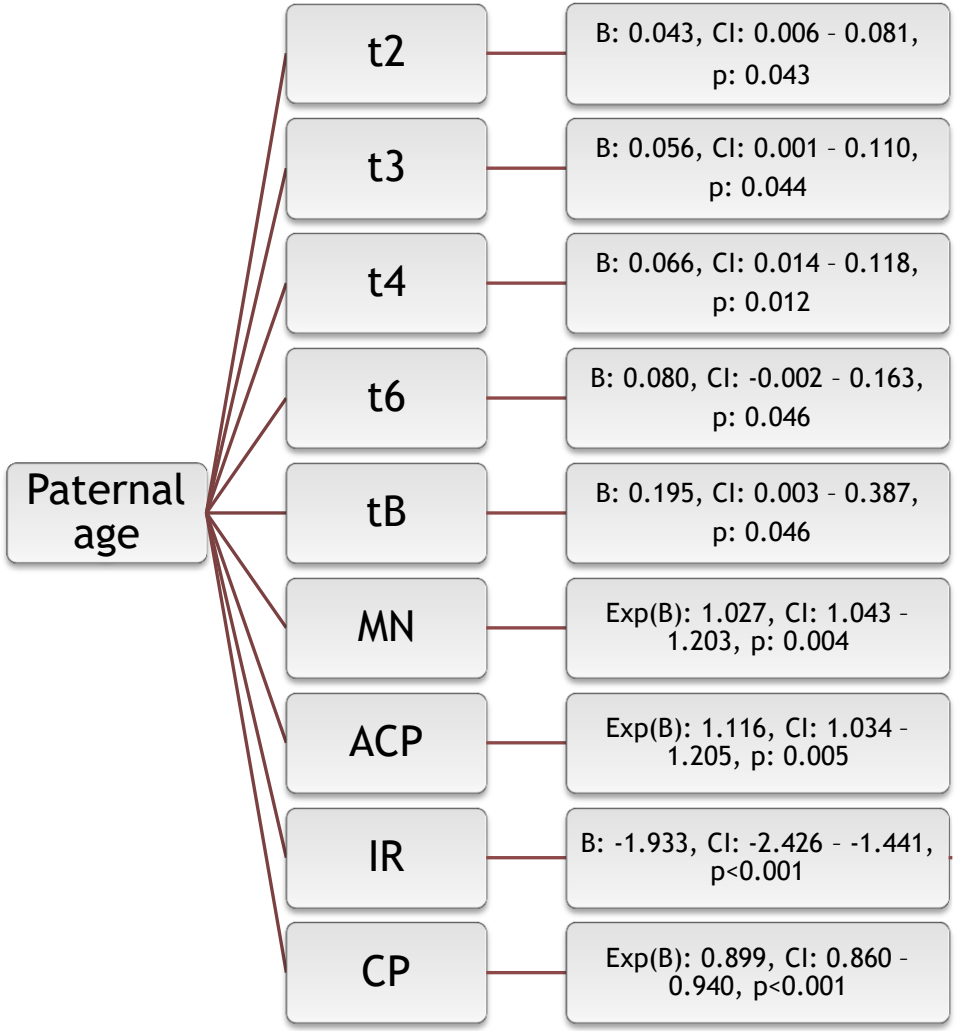
Variable	Mean ± SD
Semen analysis	
Male age (years)	41.3 ± 6.8
Ejaculatory abstinence length (days)	3.2 ± 2.5



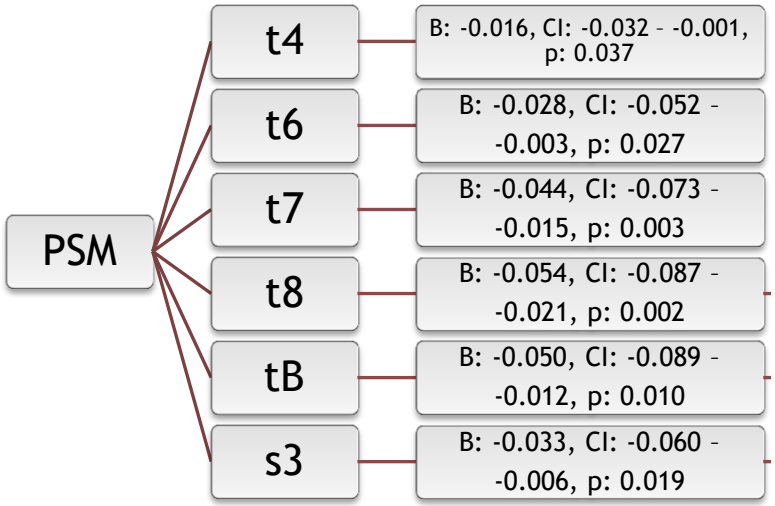
RESULTS

Variable	Mean ± SD
ICSI outcomes	
Fertilization rate (%)	75.8
Blastocyst development (%)	64.4
Transferred embryos (n)	1.3 ± 0.5
Endometrial thickness (mm)	8.3 ± 4.4
Implantation rate (%)	24.4 ± 56.0
Pregnancy rate (%)	24.0
Miscarriage rate (%)	0.0

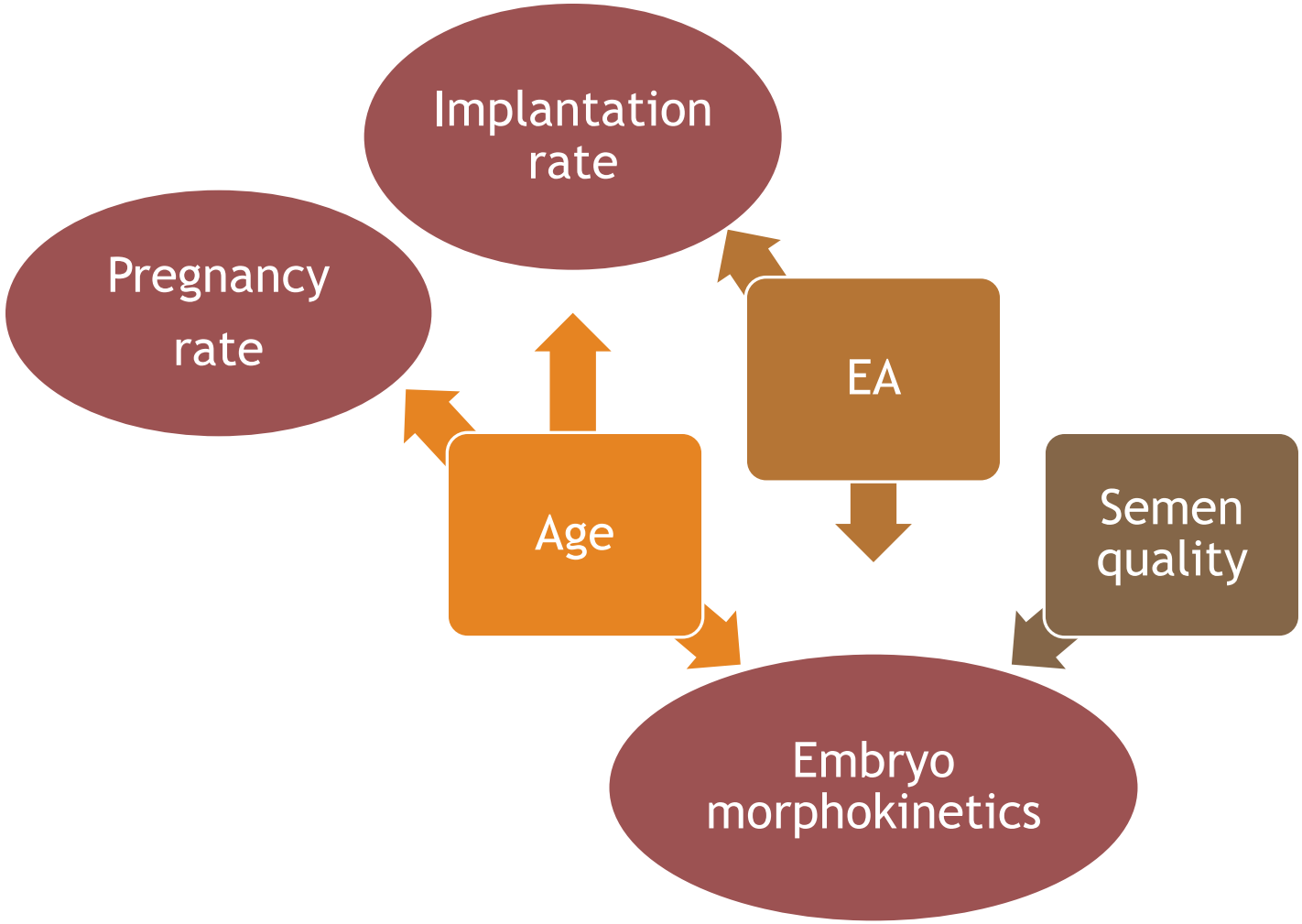
RESULTS


Paternal age
t2
B: 0.043, CI: 0.006 - 0.081, p: 0.043
t3
B: 0.056, CI: 0.001 - 0.110, p: 0.044
t4
B: 0.066, CI: 0.014 - 0.118, p: 0.012
t6
B: 0.080, CI: -0.002 - 0.163, p: 0.046
tB
B: 0.195, CI: 0.003 - 0.387, p: 0.046
MN
Exp(B): 1.027, CI: 1.043 - 1.203, p: 0.004
ACP
Exp(B): 1.116, CI: 1.034 - 1.205, p: 0.005
IR
B: -1.933, CI: -2.426 - -1.441, p<0.001
CP
Exp(B): 0.899, CI: 0.860 - 0.940, p<0.001

RESULTS

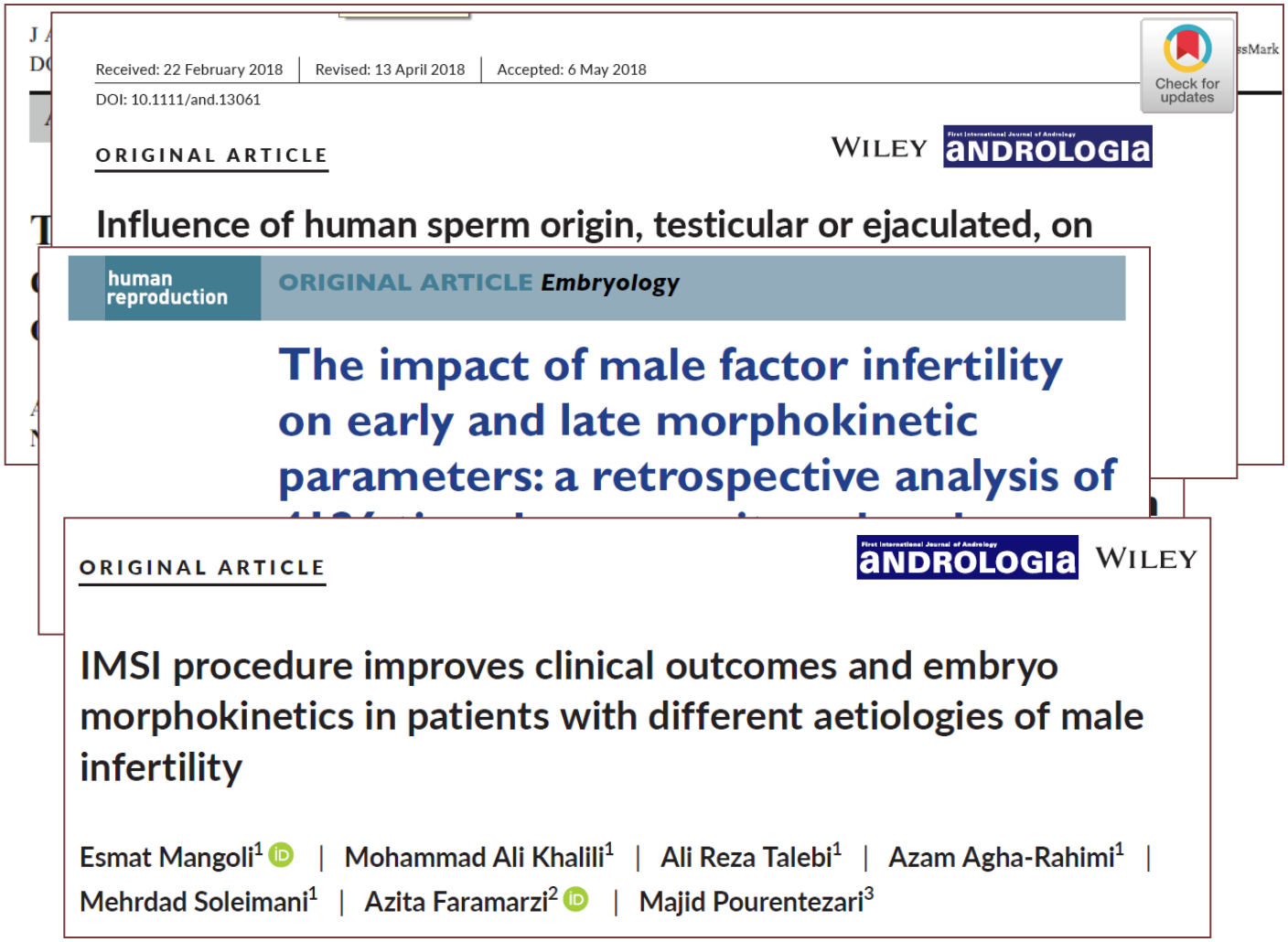

PSM
t4
B: -0.016, CI: -0.032 – -0.001, p: 0.037
t6
B: -0.028, CI: -0.052 – -0.003, p: 0.027
t7
B: -0.044, CI: -0.073 – -0.015, p: 0.003
t8
B: -0.054, CI: -0.087 – -0.021, p: 0.002
tB
B: -0.050, CI: -0.089 – -0.012, p: 0.010
s3
B: -0.033, CI: -0.060 – -0.006, p: 0.019

COMMENTS


Implantation rate
Pregnancy rate
EA
Age
Semen quality
Embryo morphokinetics

COMMENTS

Background



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ORIGINAL ARTICLE

WILEY ANDROLOGIA

Influence of human sperm origin, testicular or ejaculated, on

human reproduction ORIGINAL ARTICLE *Embryology*

The impact of male factor infertility on early and late morphokinetic parameters: a retrospective analysis of

ORIGINAL ARTICLE

ANDROLOGIA WILEY

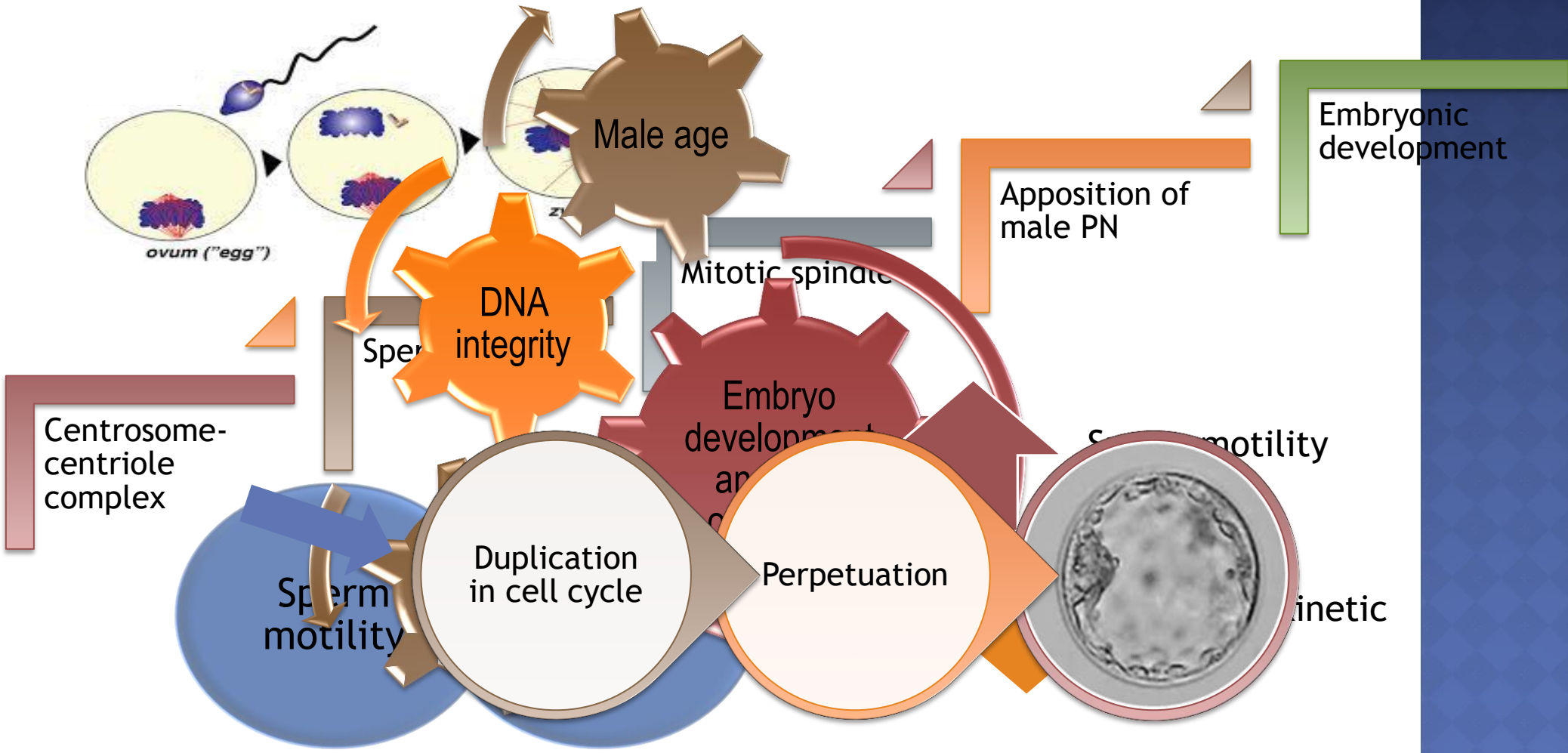
IMSI procedure improves clinical outcomes and embryo morphokinetics in patients with different aetiologies of male infertility

Esmat Mangoli[1] | Mohammad Ali Khalili[1] | Ali Reza Talebi[1] | Azam Agha-Rahimi[1] | Mehrdad Soleimani[1] | Azita Faramarzi[2] | Majid Pourentezari[3]

COMMENTS

Background

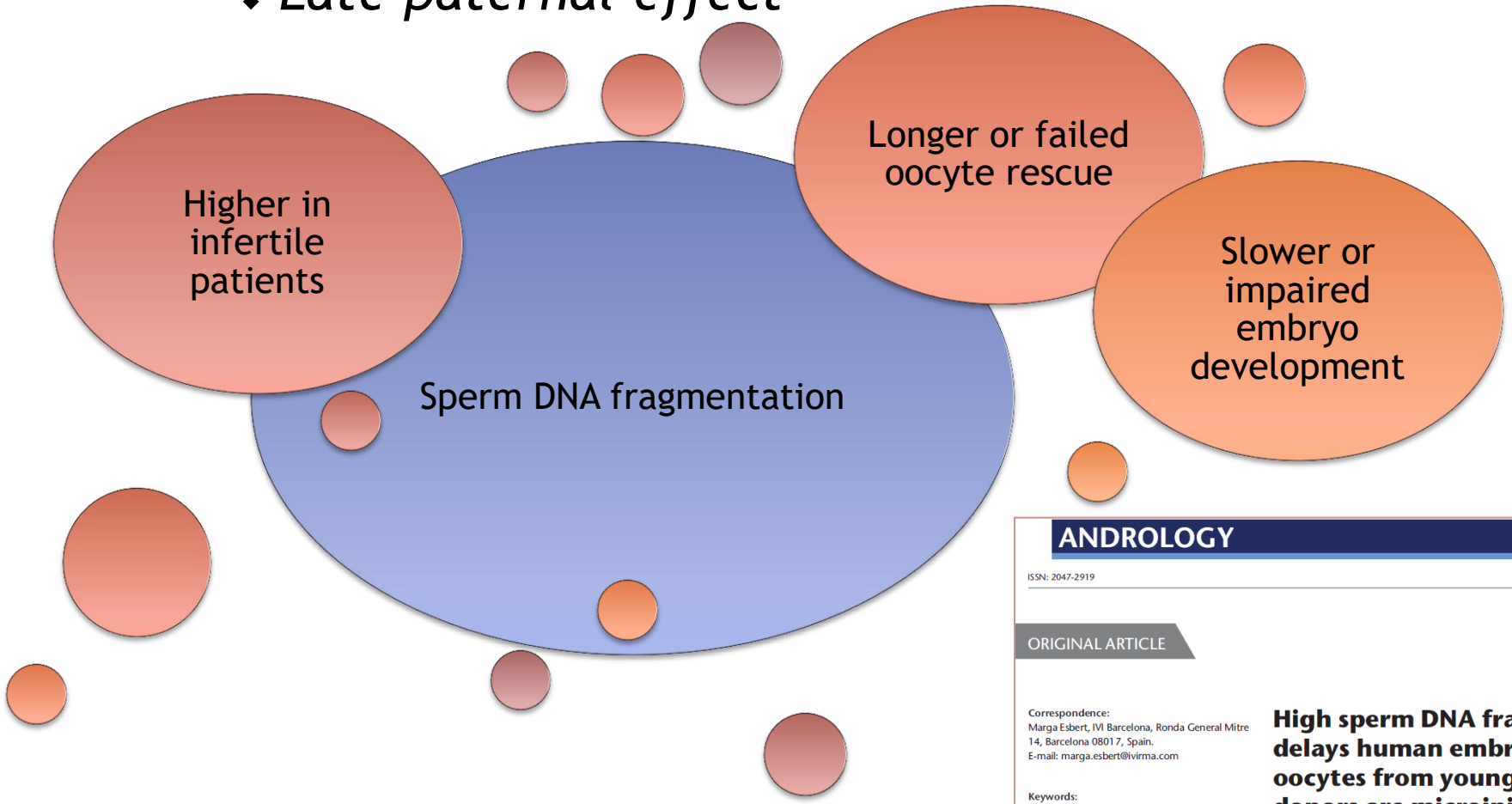
❖ *Early paternal effect*

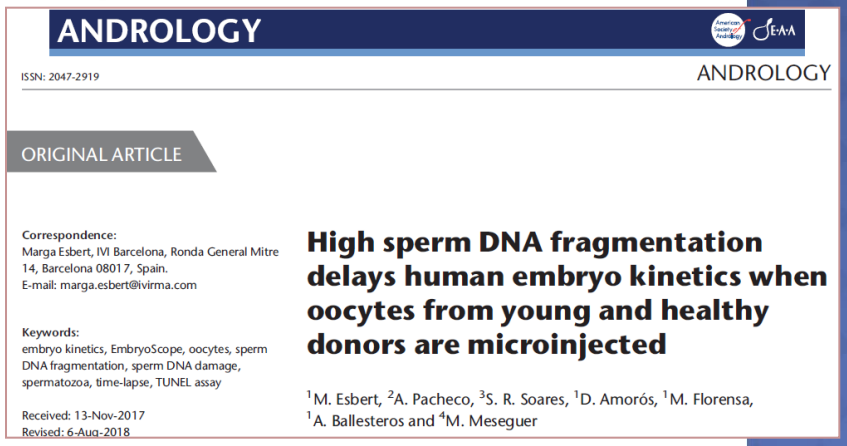


COMMENTS

Background

❖ *Late paternal effect*





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ORIGINAL ARTICLE

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Received: 13-Nov-2017
Revised: 6-Aug-2018

High sperm DNA fragmentation delays human embryo kinetics when oocytes from young and healthy donors are microinjected

[1]M. Esbert, [2]A. Pacheco, [3]S. R. Soares, [1]D. Amorós, [1]M. Florensa, [1]A. Ballesteros and [4]M. Meseguer

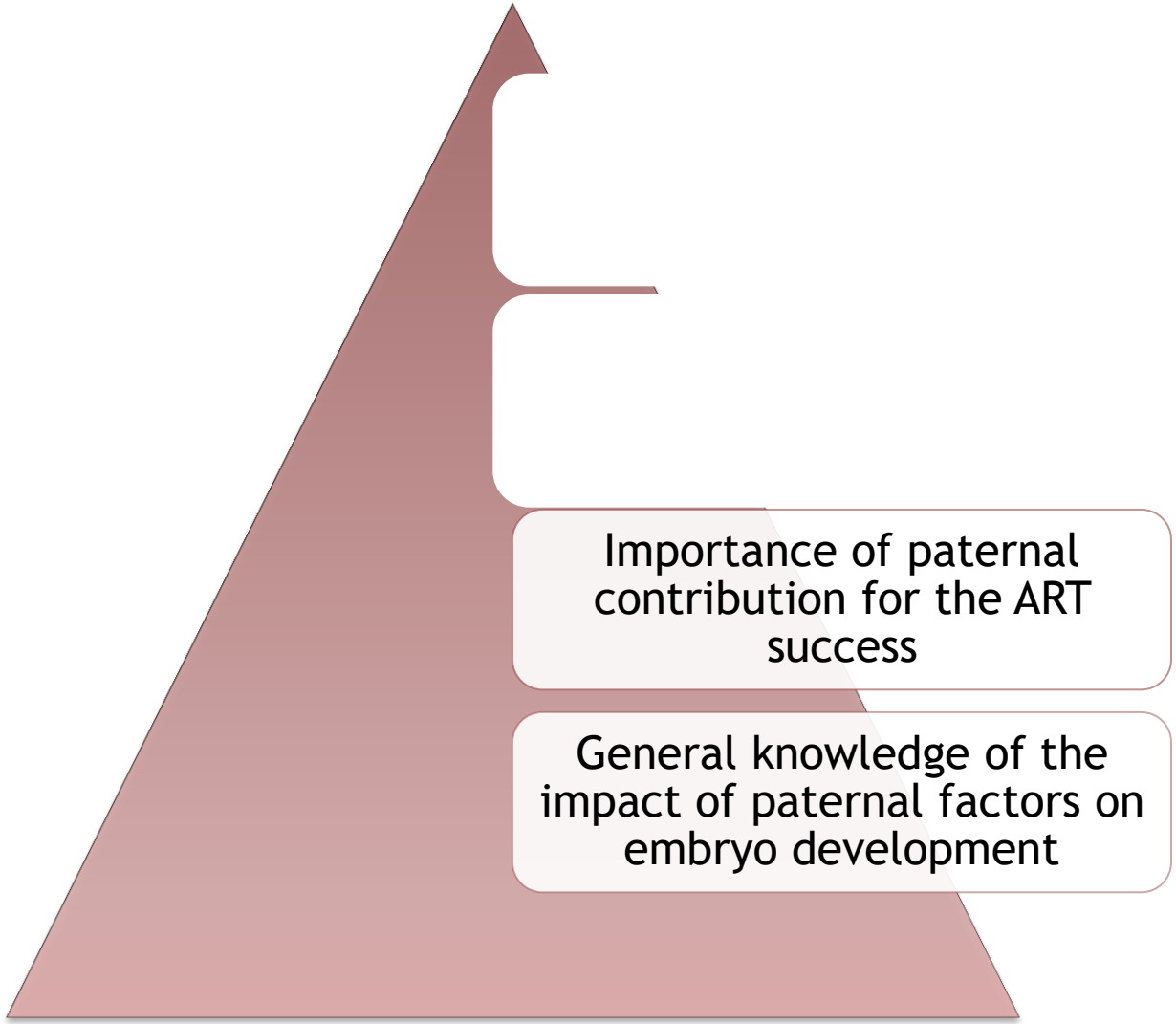
COMMENTS

Limitations

- Small casuistic
- Retrospective nature
- Hormonal profile, SDF, sperm morphology

COMMENTS

Wider implications of the findings



CONCLUSION

Increasing paternal age and EA, and poor semen quality correlate with delayed cell cleavage and blastulation;

Increasing paternal age and EA reduce the implantation rate;

Increasing paternal age reduce the pregnancy chance in couples undergoing ICSI as a result of male factor of infertility