CT35 - Recuperação de Espermatozoides para ICSI e Manejo Clínico-Laboratorial

XXXVIII CONGRESSO BRASILEIRO DE UROLOGIA

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Experiência do andrologista na escolha do melhor espermatozoide

Edson Borges Jr.

INICIATIVA E REALIZAÇÃO

SOCIEDADE BRASILEIRA DE UROLOGIA

GERENCIAMENTO E PRODUÇÃO

RV PLANEJAMENTO E GERENCIAMENTO DE EVENTOS

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Delaro:

Ausência de conflito de interesses para o tema desta apresentação

Resolução do Conselho Federal de Medicina nº 1.595/2.000

AGENDA

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- Qualidade seminal e resultados TRA
- Infertilidade por estresse oxidativo – *Male Oxidative Stress Infertility* (MOSI)
- Fragmentação do DNA do espermatozoide
- MSOME - IMSI
- Morfocinética embrionária e qualidade seminal

Qualidade seminal e resultados de T.R.A.

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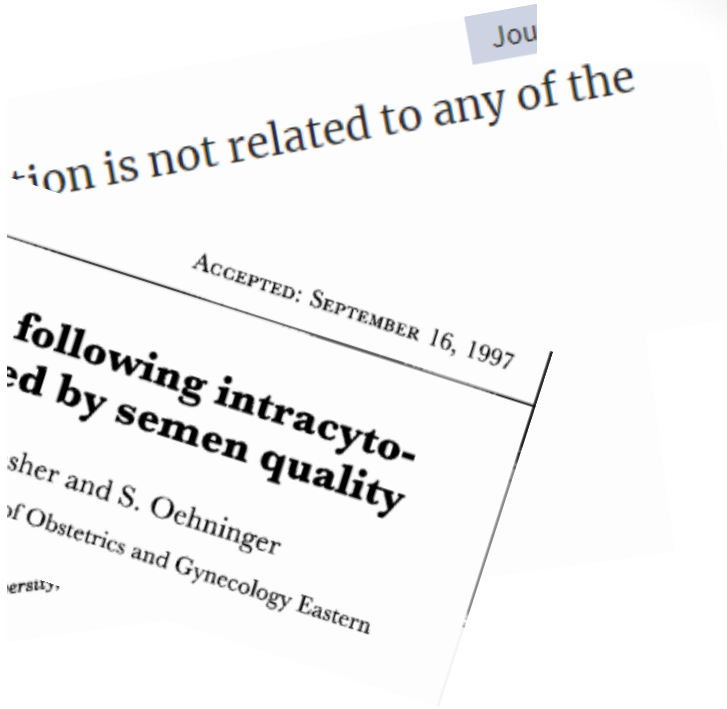

TMSC (total motile sperm count)

Número total de espermatozoides móveis

= volume x conc/ml x % A+B / 100%

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ANDROLOGY

ORIGINAL ARTICLE

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*These authors contributed equally to this manuscript.

Keywords:
intracytoplasmic sperm injection, infertility, sperm count, sperm motility, spermatozoa

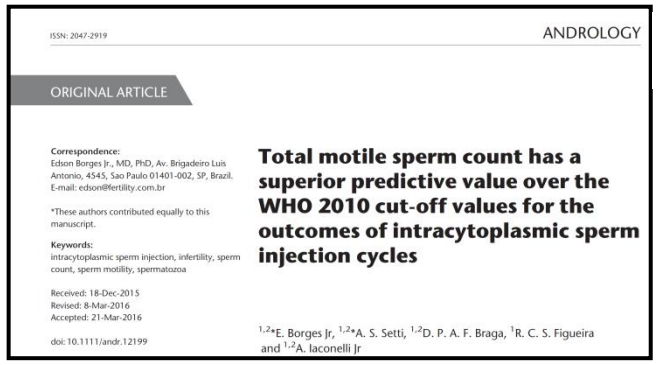
Received: 18-Dec-2015
Revised: 8-Mar-2016
Accepted: 21-Mar-2016

doi: 10.1111/andr.12199

Total motile sperm count has a superior predictive value over the WHO 2010 cut-off values for the outcomes of intracytoplasmic sperm injection cycles

[1,2]*E. Borges Jr, [1,2]*A. S. Setti, [1,2]D. P. A. F. Braga, [1]R. C. S. Figueira and [1,2]A. Iaconelli Jr

- ***Definição: TMSC = volume x conc/ml x % A+B / 100%***
- 518 ciclos de ICSI
- TMSC normal: > 20 milhões



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- OMS 2010: 518 (100%) fator masculino
  - Oligozoospermia: 148
  - Astenozoospermia: 106
  - Teratozoospermia: 361

- TMSC
  - normal: 190 (36,7%): ausência de fator masculino
  - anormal: 328 (63,3%): fator masculino +

Table 4 Comparison of ICSI outcomes between normal and abnormal TMSC groups

Variables	Normal TMSC group (n = 328)	Abnormal TMSC group (n = 190)	p-value
Paternal age (year-old)	37.4 ± 4.8	38.1 ± 6.1	0.187
Maternal age (year-old)	35.4 ± 3.9	33.5 ± 4.0	<0.001
Number of aspirated follicles	17.8 ± 9.7	20.8 ± 11.2	0.002
Number of obtained oocytes	12.7 ± 7.2	15.1 ± 8.1	0.001
Number of mature oocytes	9.7 ± 5.5	11.2 ± 6.2	0.003
Number of injected oocytes	9.4 ± 4.3	10.2 ± 4.9	0.067
Fertilization rate (%)	84.9 ± 14.4	81.1 ± 15.8	0.016
Number of obtained embryos	8.2 ± 3.8	8.7 ± 4.4	0.204
Number of transferred embryos	2.2 ± 0.6	2.2 ± 0.5	0.469
Implantation rate (%)	25.1 ± 36.0	25.8 ± 35.2	0.832
Pregnancy rate (%)	134/328 (40.9)	94/190 (49.5)	0.060
Miscarriage rate (%)	29/162 (17.9)	23/78 (29.5)	0.041

SD, standard deviation; TMSC: total motile sperm count.

Table 5 Linear and binary regression analysis results for the influences of TMSC and WHO cut-off values on ICSI outcome

Variables	Method	OR or RC	CI or R^2	*p*-value
Fertilization rate	Concentration	3.994	1.4%	0.015
	Motility	0.097	0.0%	0.957
	Progressive motility	2.299	0.5%	0.163
	Morphology	8.735	0.9%	0.047
	TMSC	3.784	1.5%	0.013
	Normal TMSC	−0.253	0.1%	0.592
Formation of high-quality zygotes on D1	Concentration	1.64	1.09–2.46	0.018
	Motility	1.34	0.85–2.12	0.208
	Progressive motility	1.22	0.80–1.85	0.355
	Morphology	0.89	0.65–1.22	0.461
	TMSC	1.13	1.01–1.28	0.049
	Normal TMSC	0.99	0.97–1.02	0.629
Formation of high-quality embryos on D2	Concentration	0.93	0.76–1.09	0.101
	Motility	0.91	0.79–1.06	0.222
	Progressive motility	1.06	0.92–1.22	0.420
	Morphology	0.84	0.60–1.18	0.314
	TMSC	1.18	1.03–1.35	0.013
	Normal TMSC	0.97	0.94–1.01	0.098
Formation of high-quality embryos on D3	Concentration	0.91	0.79–1.06	0.229
	Motility	0.93	0.79–1.09	0.379
	Progressive motility	1.00	0.85–1.17	0.969
	Morphology	1.18	0.83–1.67	0.354
	TMSC	1.12	1.07–1.29	0.037
	Normal TMSC	0.98	0.95–1.02	0.319
Formation of blastocyst on D5	Concentration	1.11	0.97–1.27	0.116
	Motility	1.03	0.90–1.19	0.660
	Progressive motility	0.91	0.70–1.23	0.303
	Morphology	1.13	0.83–1.55	0.427
	TMSC	1.16	1.04–1.26	0.011
	Normal TMSC	1.00	0.97–1.04	0.802

Blastocyst expansion grade on D5	Concentration	0.83	0.66–1.05	0.120
	Motility	1.01	0.79–1.29	0.948
	Progressive motility	1.08	0.85–1.38	0.533
	Morphology	0.99	0.57–1.71	0.962
	TMSC	1.27	1.01–1.60	0.042
	Normal TMSC	1.03	0.98–1.07	0.287
Implantation rate	Concentration	2.387	0.1%	0.492
	Motility	−2.916	0.1%	0.453
	Progressive motility	−1.754	0.0%	0.616
	Morphology	6.084	0.0%	0.502
	TMSC	−0.688	0.0%	0.833
	Normal TMSC	1.705	1.0%	0.222
Pregnancy	Concentration	0.71	0.49–1.05	0.083
	Motility	0.77	0.50–1.19	0.242
	Progressive motility	0.72	0.49–1.05	0.089
	Morphology	2.17	0.78–6.07	0.132
	TMSC	1.40	0.98–2.01	0.066
	Normal TMSC	0.94	0.86–1.03	0.200
Miscarriage	Concentration	0.57	0.30–1.08	0.089
	Motility	1.32	0.61–2.85	0.478
	Progressive motility	1.05	0.54–2.05	0.886
	Morphology	0.84	0.17–4.08	0.826
	TMSC	0.52	0.28–0.90	0.045
	Normal TMSC	1.12	0.91–1.26	0.084

CI, confidence interval; OR, odds ratio; RC, regression coefficient; TMSC, total motile sperm count; WHO, World Health Organization.

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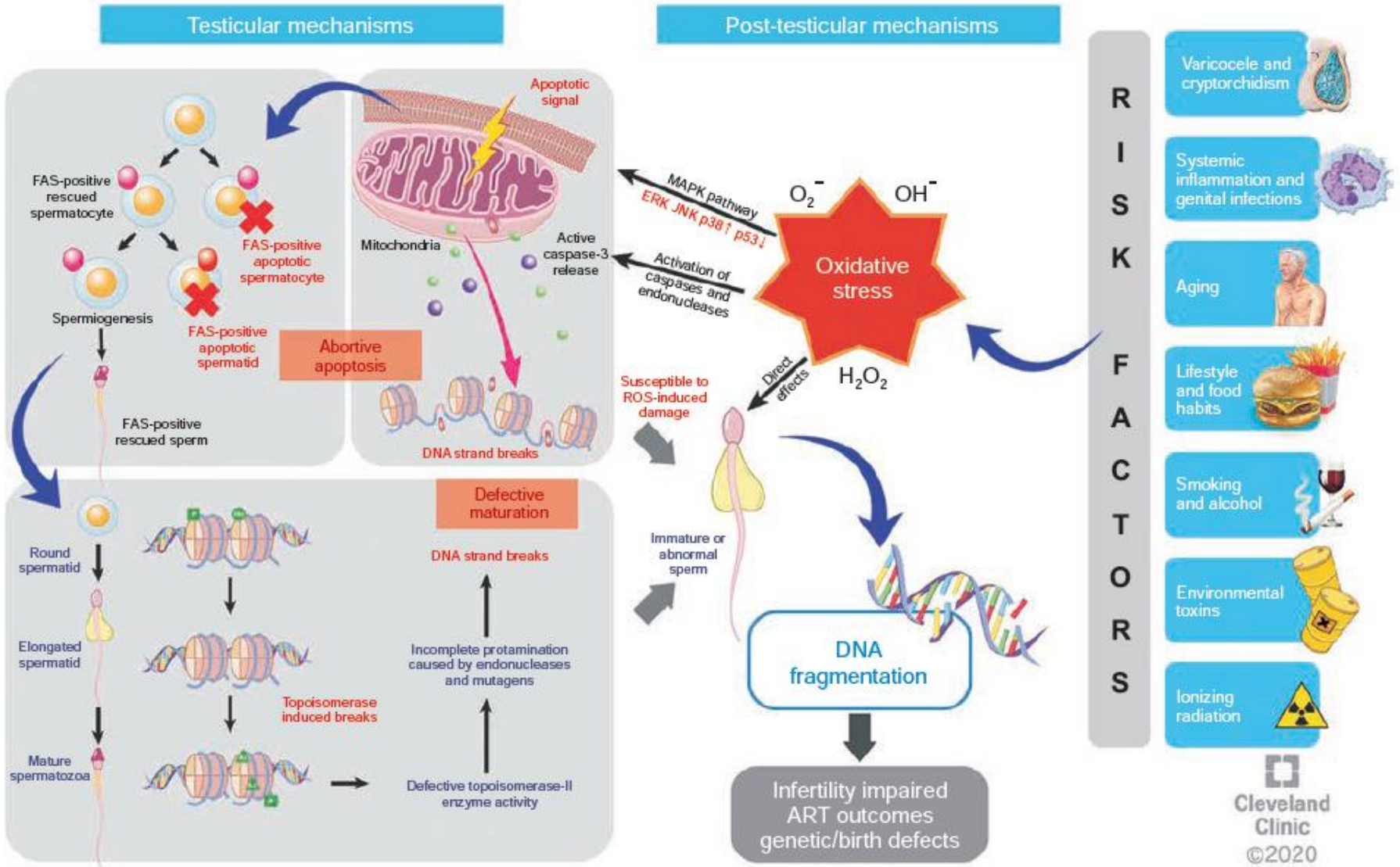
The World Journal of MEN's HEALTH

Sperm DNA Fragmentation: A New Guideline for Clinicians

Ashok Agarwal[1], Ahmad Majzoub[2,3], Saradha Baskaran[1], Manesh Kumar Panner Selvam[1],



Review Article

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The World Journal of MEN's HEALTH

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Male Oxidative Stress Infertility (MOSI): Proposed Terminology and Clinical Practice Guidelines for Management of Idiopathic Male Infertility

Ashok Agarwal[1,2], Neel Parekh[2], Manesh Kumar Panner Selvam[1,2], Ralf Henkel[1,3], Rupin Shah[4], Sheryl T. Homa[5], Ranjith Ramasamy[6], Edmund Ko[7], Kelton Tremellen[8], Sandro Esteves[9,10], Ahmad Majzoub[1,11], Juan G. Alvarez[12], David K. Gardner[13], Channa N. Jayasena[14,15], Jonathan W. Ramsay[15], Chak-Lam Cho[16], Ramadan Saleh[17], Denny Sakkas[18], James M. Hotaling[19], Scott D. Lundy[2], Sarah Vij[2], Joel Marmar[20], Jaime Gosalvez[21], Edmund Sabanegh[2], Hyun Jun Park[22,23], Armand Zini[24], Parviz Kavoussi[25], Sava Micic[26], Ryan Smith[27], Gian Maria Busetto[28], Mustafa Emre Bakırcıoğlu[29], Gerhard Haidl[30], Giancarlo Balercia[31], Nicolás Garrido Puchalt[32], Moncef Ben-Khalifa[33], Nicholas Tadros[34], Jackson Kirkman-Browne[35,36], Sergey Moskovtsev[37], Xuefeng Huang[38], Edson Borges Jr[39], Daniel Franken[40], Natan Bar-Chama[41], Yoshiharu Morimoto[42], Kazuhisa Tomita[42], Vasan Satya Srini[43], Willem Ombelet[44,45], Elisabetta Baldi[46], Monica Muratori[47], Yasushi Yumura[48], Sandro La Vignera[49], Raghavender Kosgi[50], Marlon P. Martinez[51], Donald P. Evenson[52], Daniel Suslik Zylbersztejn[53], Matheus Roque[54], Marcello Cocuzza[55], Marcelo Vieira[56,57], Assaf Ben-Meir[58], Raoul Orvieto[59,60], Eliahu Levitas[61], Amir Wiser[62,63], Mohamed Arafa[64], Vineet Malhotra[65], Sijo Joseph Parekattil[66,67], Haitham Elbardisi[64], Luiz Carvalho[68,69], Rima Dada[70], Christophe Sifer[71], Pankaj Talwar[72], Ahmet Gudeloglu[73], Ahmed M.A. Mahmoud[74], Khaled Terras[75], Chadi Yazbeck[76], Bojanic Nebojsa[77], Damayanthi Durairajanayagam[78], Ajina Mounir[79], Linda G. Kahn[80], Saradha Baskaran[1], Rishma Dhillon Pai[81], Donatella Paoli[82], Kristian Leisegang[83], Mohamed-Reza Moein[84], Sonia Malik[85], Onder Yaman[86], Luna Samanta[87], Fouad Bayane[88], Sunil K. Jindal[89], Muammer Kendirci[90], Baris Altay[91], Dragoljub Perovic[92], Avi Harlev[93]

FERTILITY

Male Infertility

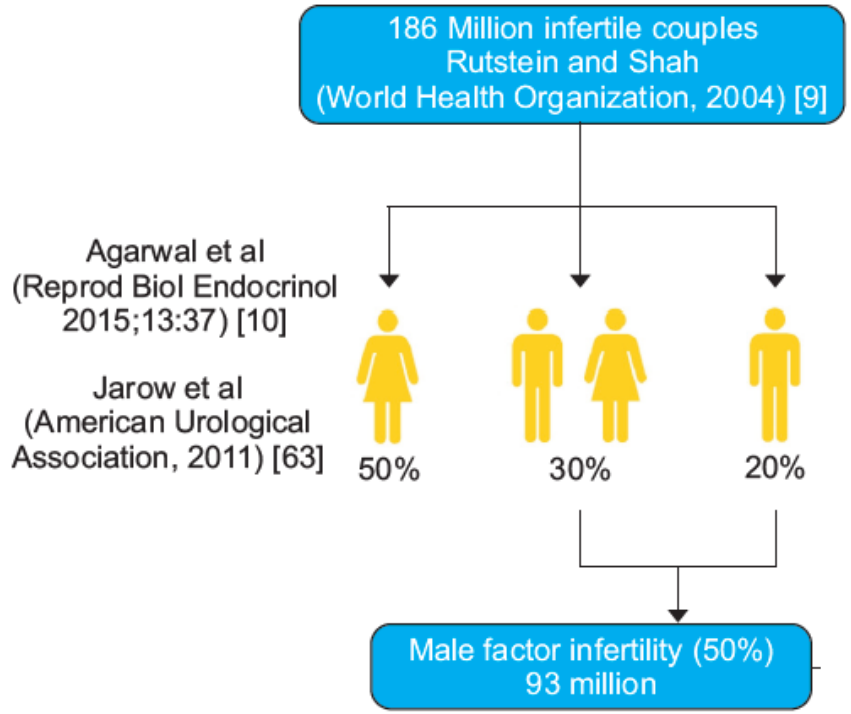
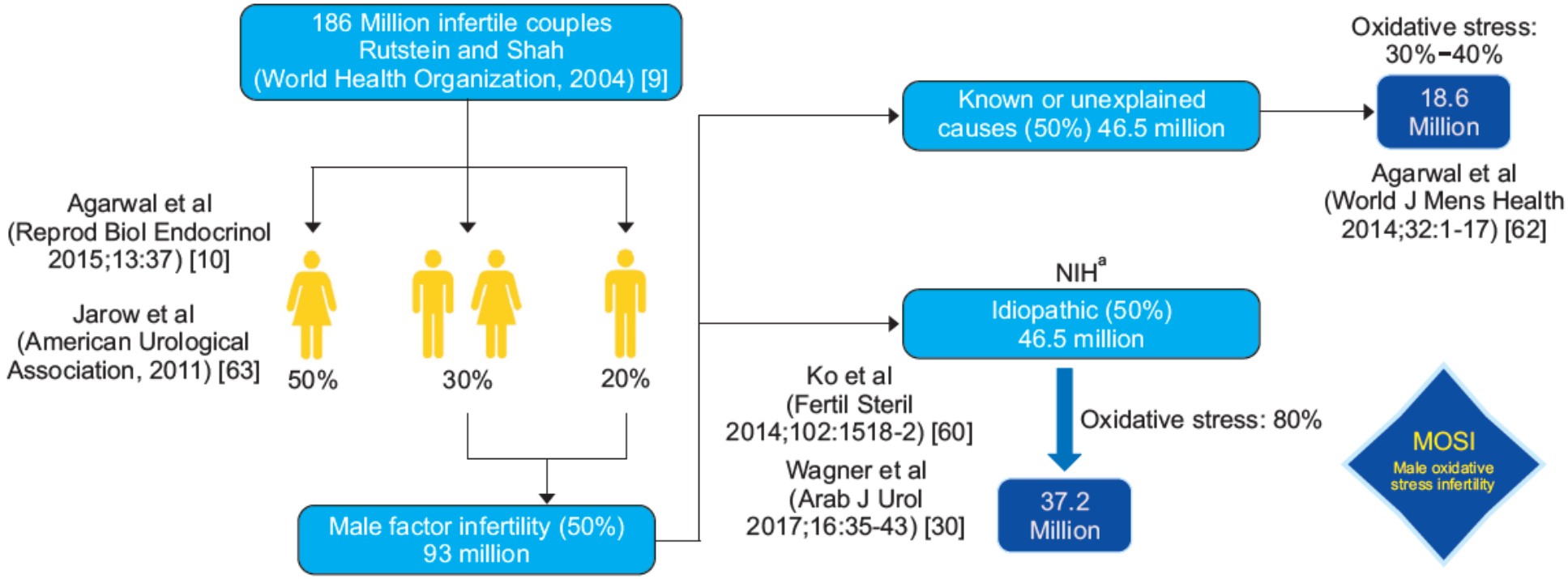


Fig. 3. Worldwide incidence of MOSI in infertile men. [a]National Institutes of Health (NIH) (https://www.nichd.nih.gov/health/topics/menshealth/conditioninfo/infertility) [61], Agarwal et al (2014) [62], Jarow et al (2011) [63].

Male Infertility



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A Global Survey of Reproductive Specialists to Determine the Clinical Utility of Oxidative Stress Testing and Antioxidant Use in Male Infertility

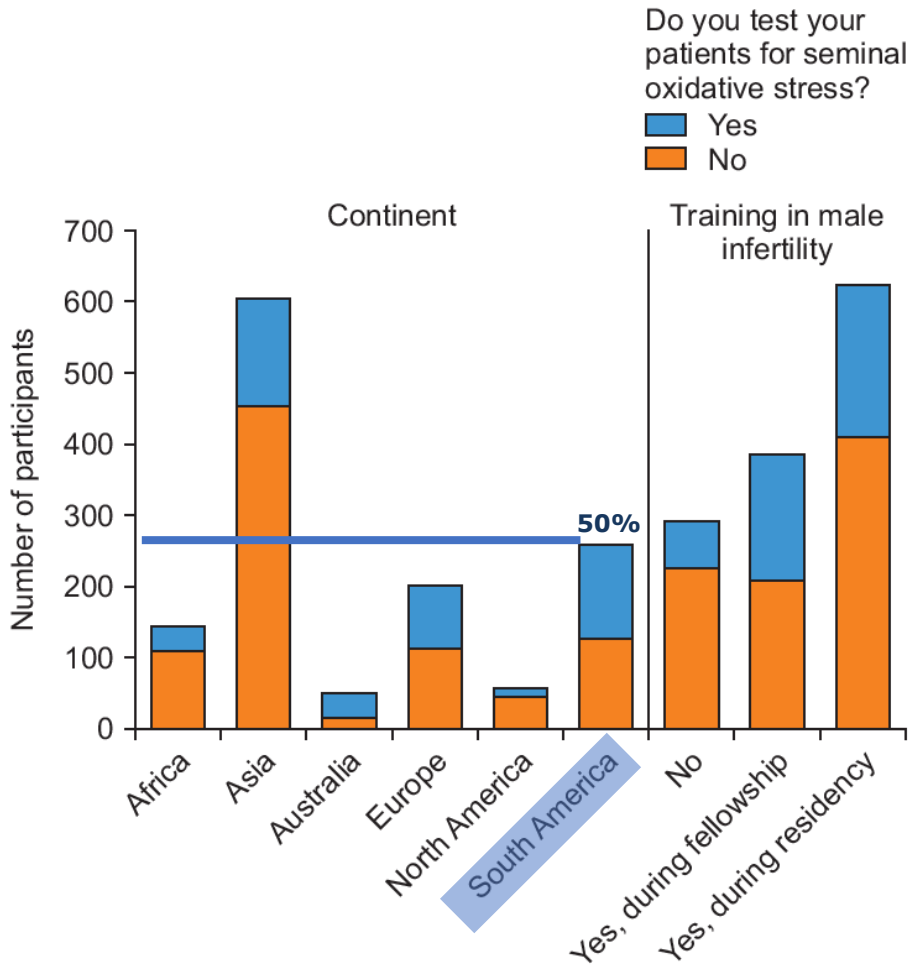

Fig. 4. Oxidative stress testing based on the geographic origin of the participants and training in male infertility.

Asian Journal of Andrology (2017) 19, 80–90

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ORIGINAL ARTICLE

Sperm Biology

A systematic review and meta-analysis to determine the effect of sperm DNA damage on *in vitro* fertilization and intracytoplasmic sperm injection outcome

Luke Simon[1,*], Armand Zini[2,*], Alina Dyachenko[2], Antonio Ciampi[2], Douglas T Carrell[1,3,4]

Pregnancy

Table 3: Meta-analysis summary: Overall and subgroup odds ratios of studies on sperm DNA damage and pregnancy

Effect	*Number of studies*	*Fixed effects model*		*Random effects model*	
		OR (95% CI)	*P*	*OR (95% CI)*	*P*
Overall effect	56	1.68 (1.49–1.89)	0.0000*	1.84 (1.5–2.27)	<0.0001*
Sperm DNA damage assays					
SCSA	23	1.18 (0.96–1.44)	0.1115	1.22 (0.93–1.61)	0.1522
TUNEL	18	2.18 (1.75–2.72)	0.0000*	2.22 (1.61–3.05)	<0.0001*
Comet	7	3.34 (2.32–4.82)	0.0000*	3.56 (1.78–7.09)	0.0003*
SCD	8	1.51 (1.18–1.92)	0.0011*	1.98 (1.19–3.3)	0.0086*
Types of assisted treatment					
IVF	16	1.65 (1.34–2.04)	0.0000*	1.92 (1.33–2.77)	0.0005*
ICSI	24	1.31 (1.08–1.59)	0.0068*	1.49 (1.11–2.01)	0.0075*
Mixed	16	2.37 (1.89–2.97)	0.0000*	2.32 (1.54–3.5)	0.0001*

Sperm DNA fragmentation and recurrent pregnancy loss: a systematic review and meta-analysis

Dana B. McQueen, M.D., M.A.S., John Zhang, Ph.D., and Jared C. Robins, M.D.

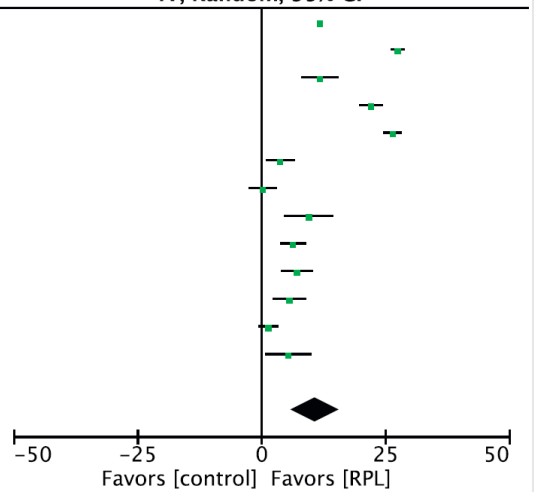
Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Northwestern University, Chicago, Illinois

Miscarriage

Study or Subgroup	Recurrent Pregnancy Loss Mean	SD	Total	Fertile Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Absalan 2012	23.3	1.1	30	11.6	0.5	30	7.9%	11.70 [11.27, 12.13]
Bareh 2016	36.8	2.7	26	9.4	2.7	31	7.9%	27.40 [25.99, 28.81]
Bhattachara 2008	18.1	16.1	74	6.4	3.6	65	7.6%	11.70 [7.93, 15.47]
Brahem 2011	32.2	6.1	31	10.2	2.1	20	7.8%	22.00 [19.66, 24.34]
Carrell 2003	38.3	4.2	21	11.9	1	26	7.8%	26.40 [24.56, 28.24]
Coughlan 2014	10.9	1.9	16	7.2	3.7	7	7.7%	3.70 [0.81, 6.59]
Esquerre-Lamare 2018	6.8	5.6	33	6.6	5.5	27	7.7%	0.20 [-2.62, 3.02]
Imam 2011	23.4	9.9	20	13.9	5.4	20	7.3%	9.50 [4.56, 14.44]
Kumar 2012	28.1	5	45	21.8	4.8	20	7.8%	6.30 [3.74, 8.86]
Ribas 2012	19.3	6.1	20	12.2	4.6	25	7.7%	7.10 [3.88, 10.32]
Ruixue 2013	25.6	11.5	68	20	7.7	63	7.6%	5.60 [2.27, 8.93]
Zhang 2012	15.2	6.4	111	13.9	4.4	30	7.8%	1.30 [-0.67, 3.27]
Zidi-Jrah 2016	17.1	9.3	22	11.8	5.7	20	7.4%	5.30 [0.68, 9.92]
Total (95% CI)			**517**			**384**	**100.0%**	**10.70 [5.82, 15.58]**

Heterogeneity: $Tau^2 = 78.10$; $Chi^2 = 1019.62$, df = 12 ($P < 0.00001$); $I^2 = 99\%$

Test for overall effect: $Z = 4.30$ ($P < 0.0001$)



Primary outcome in overall analysis.

McQueen. Sperm DNA fragmentation and RPL. Fertil Steril 2019.

Fertility and Sterility® Vol. 112, No. 1, July 2019

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ORIGINAL ARTICLE

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Sperm DNA fragmentation and recurrent pregnancy loss: a systematic review and meta-analysis

Dana B. McQueen, M.D., M.A.S., John Zhang, Ph.D., and Jared C. Robins, M.D.

Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Northwestern University, Chicago, Illinois

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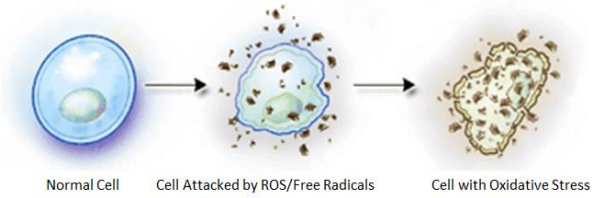
There is suficiente evidence in the existing literature suggesting that *sperm DNA damage has a negative effect on clinical pregnancy and miscarriage* following IVF and/or ICSI treatment



ORIGINAL ARTICLE: ANDROLOGY

Sperm DNA fragmentation is correlated with poor embryo development, lower implantation rate, and higher miscarriage rate in reproductive cycles of non–male factor infertility

Edson Borges Jr., M.D., Ph.D.,[a,b] Bianca Ferrarini Zanetti, Ph.D.,[a,b] Amanda Souza Setti, M.Sc.,[a,b] Daniela Paes de Almeida Ferreira Braga, Ph.D.,[a,b] Rodrigo Rosa Provenza, B.Sc.,[a] and Assumpto Iaconelli Jr., M.D.[a,b]

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Fertility and Sterility® Vol. 112, No. 3, September 2019

- 475 ciclos de ICSI / ausência de fator masculino
- fragDNA espermatico ≥ 30% x < 30%
- Estudo coorte prospectivo

Sperm DNA fragmentation is correlated with poor embryo development, lower implantation rate, and higher miscarriage rate in reproductive cycles of non–male factor infertility

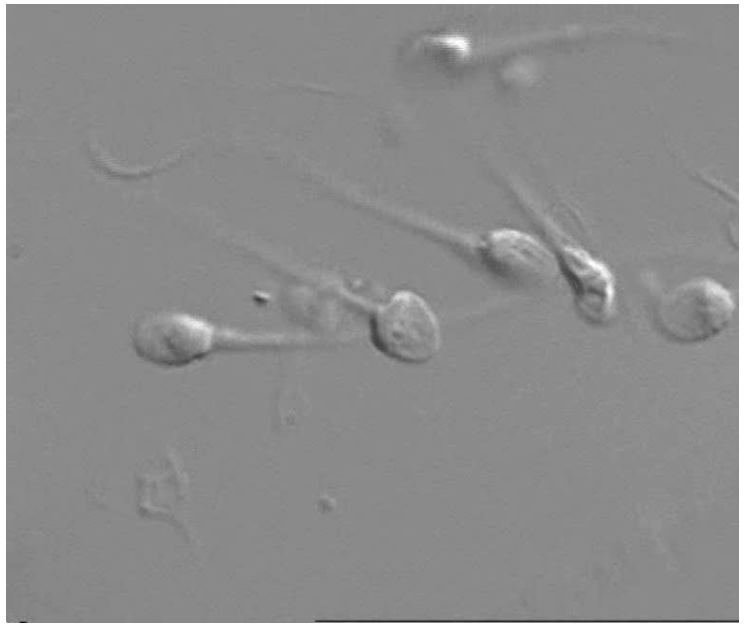
Effect of SDF on laboratory and clinical outcomes.

Variable	< 30% SDF (n = 433)	≥30% SDF (n = 42)	*P* value
Laboratory outcomes[a]			
Fertilization rate	90.10 ± 3.50	85.67 ± 1.03	.226
Normal cleavage speed rate	72.16 ± 1.30	61.56 ± 4.40	.010
High-quality embryos at day 3 rate	36.47 ± 1.51	23.89 ± 5.51	.021
Blastocyst rate	56.25 ± 2.01	39.01 ± 1.40	.016
Blastocyst quality rate	30.54 ± 2.27	11.32 ± 7.72	< .001
Clinical outcomes[b]			
Implantation rate	46.09 ± 0.55	33.21 ± 1.96	< .001
Chemical pregnancy rate	34.99	33.11	.940
Clinical pregnancy rate	32.42	30.33	.774
Miscarriage rate	17.8	39.9	.018

[a] Adjusted for maternal age, maternal BMI, total FSH dose, number of retrieved oocytes, and paternal age.
[b] Adjusted for maternal age, maternal BMI, total FSH dose, number of retrieved oocytes, paternal age, number of transferred embryos, endometrial thickness.

Borges. Sperm DNA fragmentation and ICSI outcomes. Fertil Steril 2019.

- **MSOME** *Motile Sperm Organellar Morphology Examination*
- **IMSI** *Intracytoplasmic Morphologically Select Sperm Injection*



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FERTILITY

European Journal of Obstetrics & Gynecology and Reproductive Biology 183 (2014) 96–103

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journal homepage: www.elsevier.com/locate/ejogrb

Review

Intracytoplasmic morphologically selected sperm injection results in improved clinical outcomes in couples with previous ICSI failures or male factor infertility: a meta-analysis

Amanda S. Setti [a,b,c], Daniela P.A.F. Braga [a,b], Rita C.S. Figueira [b,c], Assumpto Iaconelli Jr.[a,b], Dr.Edson Borges [a,b,*]

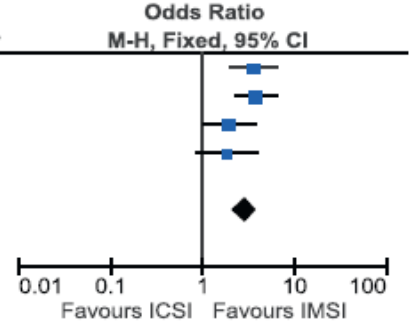
2.1 Previous ICSI failures

a) Implantation

Study or Subgroup	IMSI Events	IMSI Total	ICSI Events	ICSI Total	Weight	Odds Ratio M-H, Fixed, 95% CI	Year
Bartoov et al.	53	190	17	175	24.0%	3.60 [1.99, 6.50]	2003
Berkovitz et al.	69	248	23	248	31.2%	3.77 [2.26, 6.29]	2006
Gonzalez-Ortega et al.	35	78	25	84	25.0%	1.92 [1.01, 3.67]	2010
Oliveira et al.	24	164	11	128	19.8%	1.82 [0.86, 3.88]	2011
Total (95% CI)		**680**		**635**	**100.0%**	**2.88 [2.13, 3.89]**	
Total events	181		76				

Heterogeneity: Chi² = 4.52, df = 3 (P = 0.21); I² = 34%

Test for overall effect: Z = 6.88 (P < 0.00001)

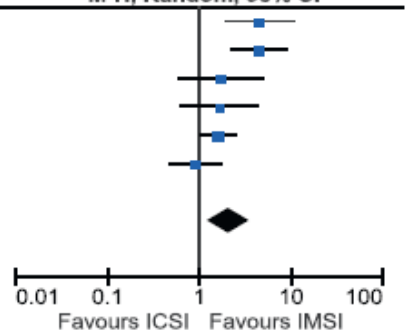


b) Pregnancy

Study or Subgroup	IMSI Events	IMSI Total	ICSI Events	ICSI Total	Weight	Odds Ratio M-H, Random, 95% CI	Year
Bartoov et al.	33	50	15	50	15.3%	4.53 [1.95, 10.51]	2003
Berkovitz et al.	48	80	20	80	17.8%	4.50 [2.29, 8.84]	2006
Gonzalez-Ortega et al.	19	30	15	30	12.8%	1.73 [0.62, 4.84]	2010
Oliveira et al.	14	63	8	55	13.8%	1.68 [0.65, 4.37]	2011
Klement et al.	52	127	97	322	21.6%	1.61 [1.05, 2.46]	2013
El Khattabi et al.	22	90	34	130	18.7%	0.91 [0.49, 1.70]	2013
Total (95% CI)		**440**		**667**	**100.0%**	**2.07 [1.22, 3.50]**	
Total events	188		189				

Heterogeneity: Tau² = 0.29; Chi² = 16.40, df = 5 (P = 0.006); I² = 70%

Test for overall effect: Z = 2.71 (P = 0.007)

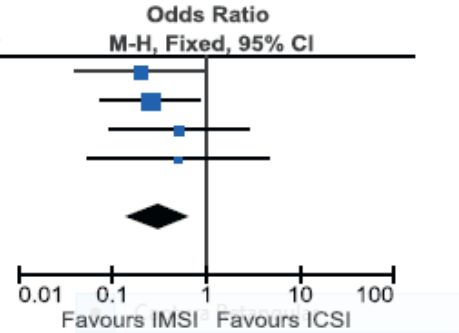


c) Miscarriage

Study or Subgroup	IMSI Events	IMSI Total	ICSI Events	ICSI Total	Weight	Odds Ratio M-H, Fixed, 95% CI	Year
Bartoov et al.	3	33	5	15	28.6%	0.20 [0.04, 0.99]	2003
Berkovitz et al.	7	48	8	20	44.2%	0.26 [0.08, 0.85]	2006
Gonzalez-Ortega et al.	3	19	4	15	17.2%	0.52 [0.10, 2.77]	2010
Oliveira et al.	2	14	2	8	10.0%	0.50 [0.06, 4.47]	2011
Total (95% CI)		**114**		**58**	**100.0%**	**0.31 [0.14, 0.67]**	
Total events	15		19				

Heterogeneity: Chi² = 0.92, df = 3 (P = 0.82); I² = 0%

Test for overall effect: Z = 2.96 (P = 0.003)



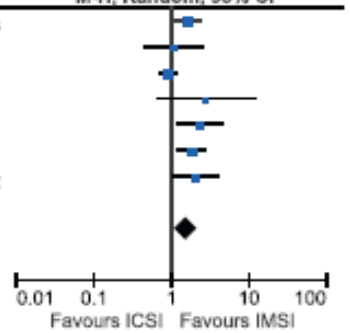
2.2 Male factor

a) Implantation rate

Study or Subgroup	IMSI Events	IMSI Total	ICSI Events	ICSI Total	Weight	Odds Ratio M-H, Random, 95% CI	Year
Antinori et al.	97	560	59	521	19.9%	1.64 [1.16, 2.32]	2008
Oliveira et al.	11	93	13	116	9.6%	1.06 [0.45, 2.50]	2011
Setti et al.	158	664	156	613	22.0%	0.91 [0.71, 1.18]	2011
Knez et al.	6	35	3	44	4.4%	2.83 [0.65, 12.24]	2011
Balaban et al.	32	108	16	105	12.6%	2.34 [1.19, 4.59]	2011
Wilding et al.	86	355	48	324	18.8%	1.84 [1.24, 2.72]	2011
Knez et al.	27	93	19	115	12.7%	2.07 [1.06, 4.02]	2012
Total (95% CI)		**1908**		**1838**	**100.0%**	**1.56 [1.11, 2.18]**	
Total events	417		314				

Heterogeneity: Tau² = 0.12; Chi² = 17.98, df = 6 (P = 0.006); I² = 67%

Test for overall effect: Z = 2.58 (P = 0.010)

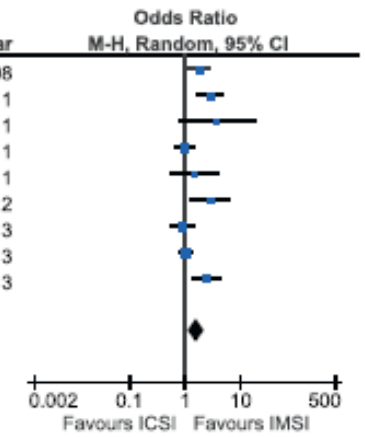


b) Pregnancy rate

Study or Subgroup	IMSI Events	IMSI Total	ICSI Events	ICSI Total	Weight	Odds Ratio M-H, Random, 95% CI	Year
Antinori et al.	89	227	58	219	14.0%	1.79 [1.20, 2.67]	2008
Wilding et al.	80	122	44	110	12.0%	2.86 [1.68, 4.87]	2011
Knez et al.	5	20	3	37	3.5%	3.78 [0.80, 17.89]	2011
Setti et al.	93	250	92	250	14.5%	1.02 [0.71, 1.46]	2011
Oliveira et al.	12	37	11	45	6.9%	1.48 [0.56, 3.90]	2011
Knez et al.	25	52	17	70	8.8%	2.89 [1.34, 6.24]	2012
De Vos et al.	43	125	51	139	12.4%	0.90 [0.55, 1.50]	2013
Klement et al.	126	269	473	1033	15.8%	1.04 [0.80, 1.37]	2013
El Khattabi et al.	61	132	33	126	12.1%	2.42 [1.43, 4.09]	2013
Total (95% CI)		**1234**		**2029**	**100.0%**	**1.61 [1.17, 2.23]**	
Total events	534		782				

Heterogeneity: Tau² = 0.15; Chi² = 27.87, df = 8 (P = 0.0005); I² = 71%

Test for overall effect: Z = 2.90 (P = 0.004)



Morphological nuclear integr associated with preimplantation genetic aneuploidy screening cycle outcomes

990 Fertility and Sterility® Vol. 95, No. 3, March 1, 2011

Rita de Cássia S. Figueira, M.Sc.,[a] *Daniela P. A. F. Braga, M.Sc.,*[a,b] *Amanda S. Setti, B.Sc.,*[b] *Assumpto Iaconelli, Jr., M.D.,*[a] *and Edson Borges, Jr., M.D., Ph.D.*[a,b]

[a] Fertility-Assisted Fertilization Centre; and [b] Sapientiae Institute-Educational and Research Centre in Assisted Reproduction, São Paulo, Brazil

Pacientes com Idade materna avançada com PGT-A

- **ICSI: n= 60**
- **IMSI: n=60**

990 Fertility and Sterility® Vol. 95, No. 3, March 1, 2011

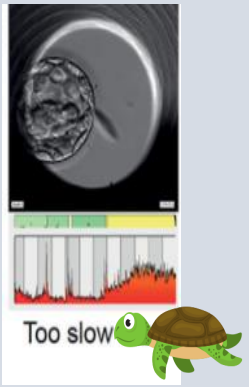
Morphological nuclear integrity of sperm cells is associated with preimplantation genetic aneuploidy screening cycle outcomes

Edson Borges Jr., *et al*

IMSI:

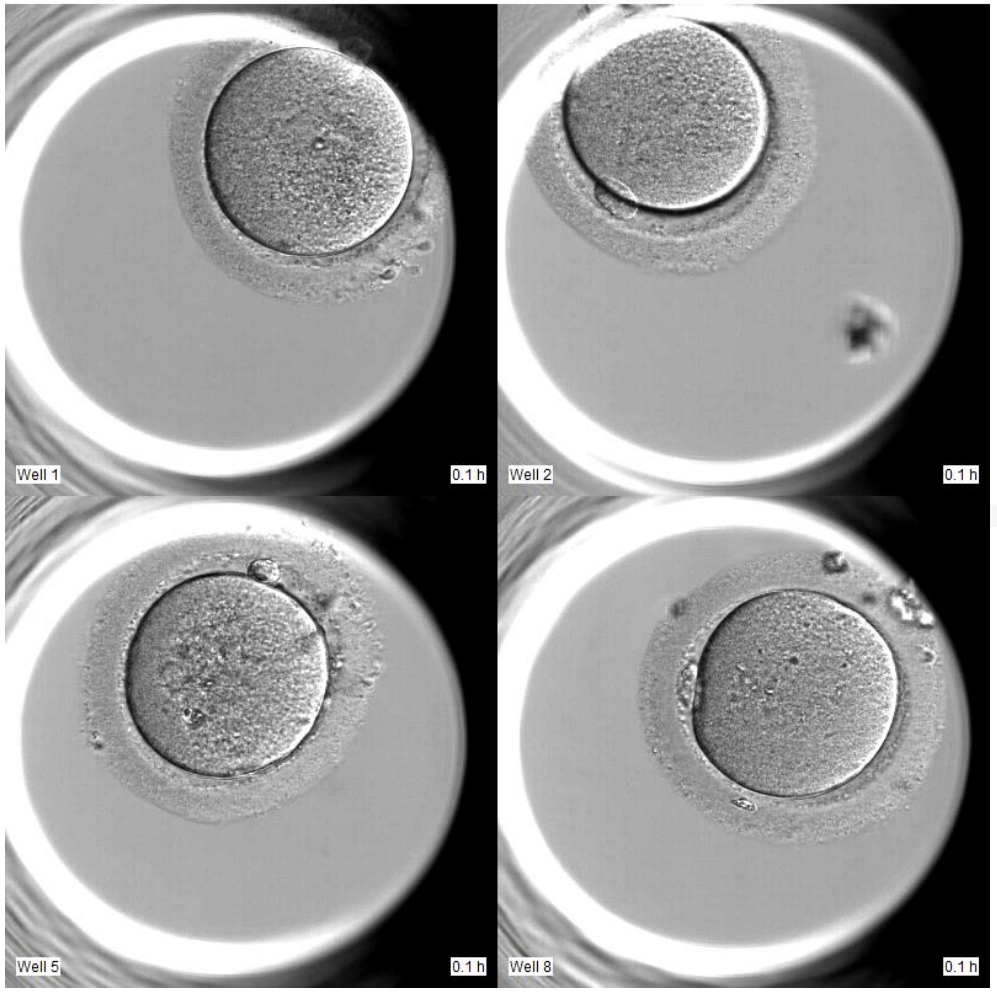
- Menor incidência de aneuploidia dos cromossomos sexuais (23,5% x 15,0%) OR= 0,57 (0,37-0,90; p= 0,015)
- Menor incidência de embriões caóticos (27,5% x 18,8%) OR=0,64 (0,43-0,96; p=0,032)
- Menor chance de cancelamento de ciclo (11,8 % x 2,5%) OR=0,26 (0,11-0,62; p=0,001)

Marcadores morfocinéticos



Hypothesis

A fragmentação do DNA pode interferir na velocidade e no padrão das divisões celulares



ARTICLE IN PRESS

ORIGINAL ARTICLE: FULL LENGTH ARTICLE

Morphokinetic parameter comparison between embryos from couples with high or low sperm DNA fragmentation index

Amanda Souza Setti, M.Sc.,[a,b] Daniela Paes de Almeida Ferreira Braga,[a,b] Patricia Guilherme,[a] Rodrigo Provenza,[a] Assumpto Iaconelli Jr.,[a,b] and Edson Borges Jr.,[a,b]

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F&S Science (2021), doi: https://doi.org/10.1016/j.xfss.2021.10.001

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- 118 patientes, 978 zigotos, ciclos de ICSI, fator masculino idiopático
- Marcadores morfocinéticos: tempo para pronúcleo, aparecimento e desapareciemnto(tPNa and tPNf), tempo para duas (t2), três (t3), quatro (t4), cinco (t5), seis (t6), sete (t7), e oito células (t8), e tempo de início (tSB) e de blastulação (tB).
- Baixo (<30%) ou alto (≥30%) DFI (índice de fragmentação do DNA do espermatozoide
- Modelos lineares generalizados mistos ajustados para potenciais confundidores, seguidos pelo teste de Bonferroni *post hoc*

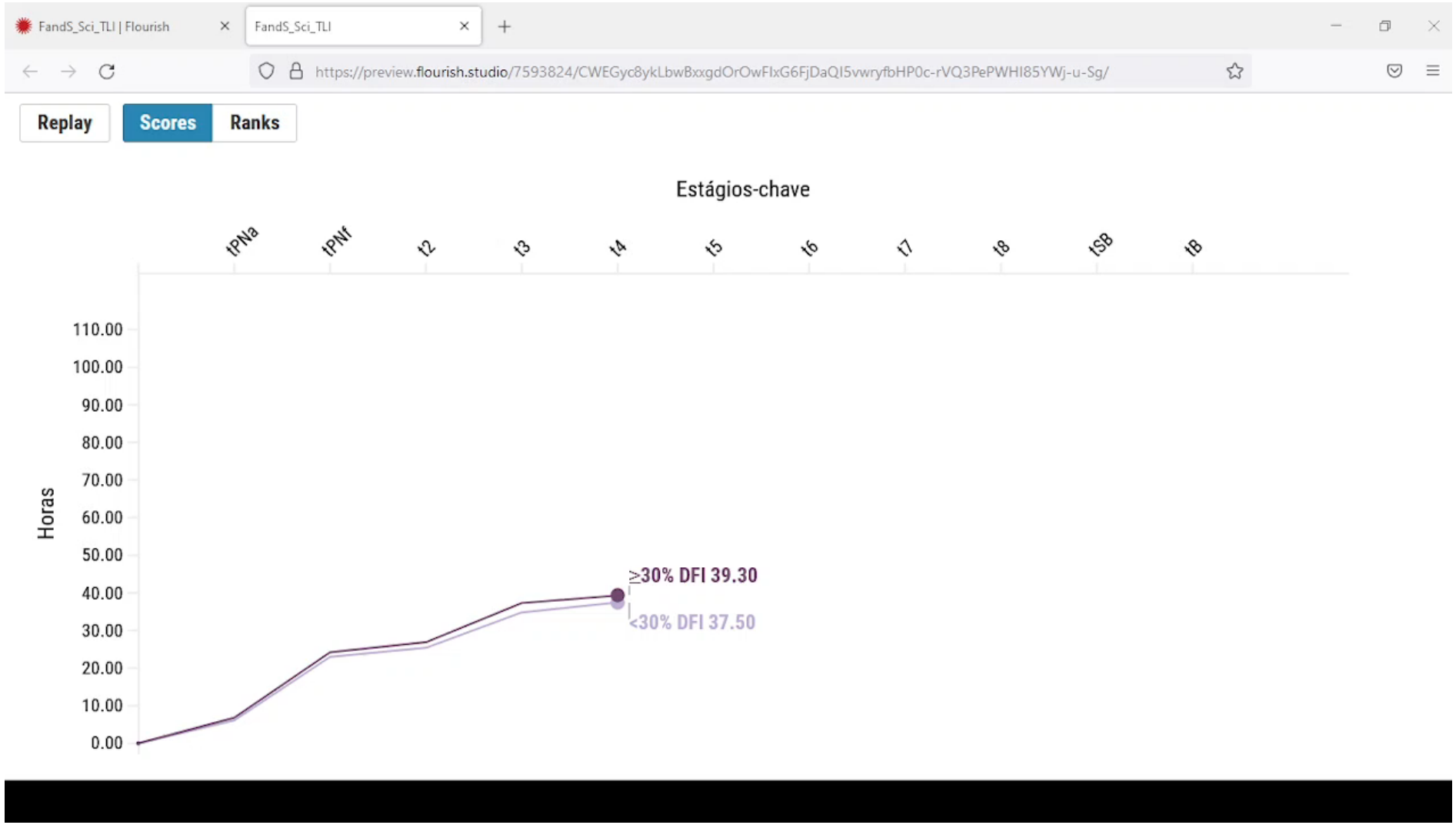
Table 2. Results from multivariate linear regression analysis followed by Bonferroni post hoc for the comparison of embryo morphokinetics between DFI groups (n=978)

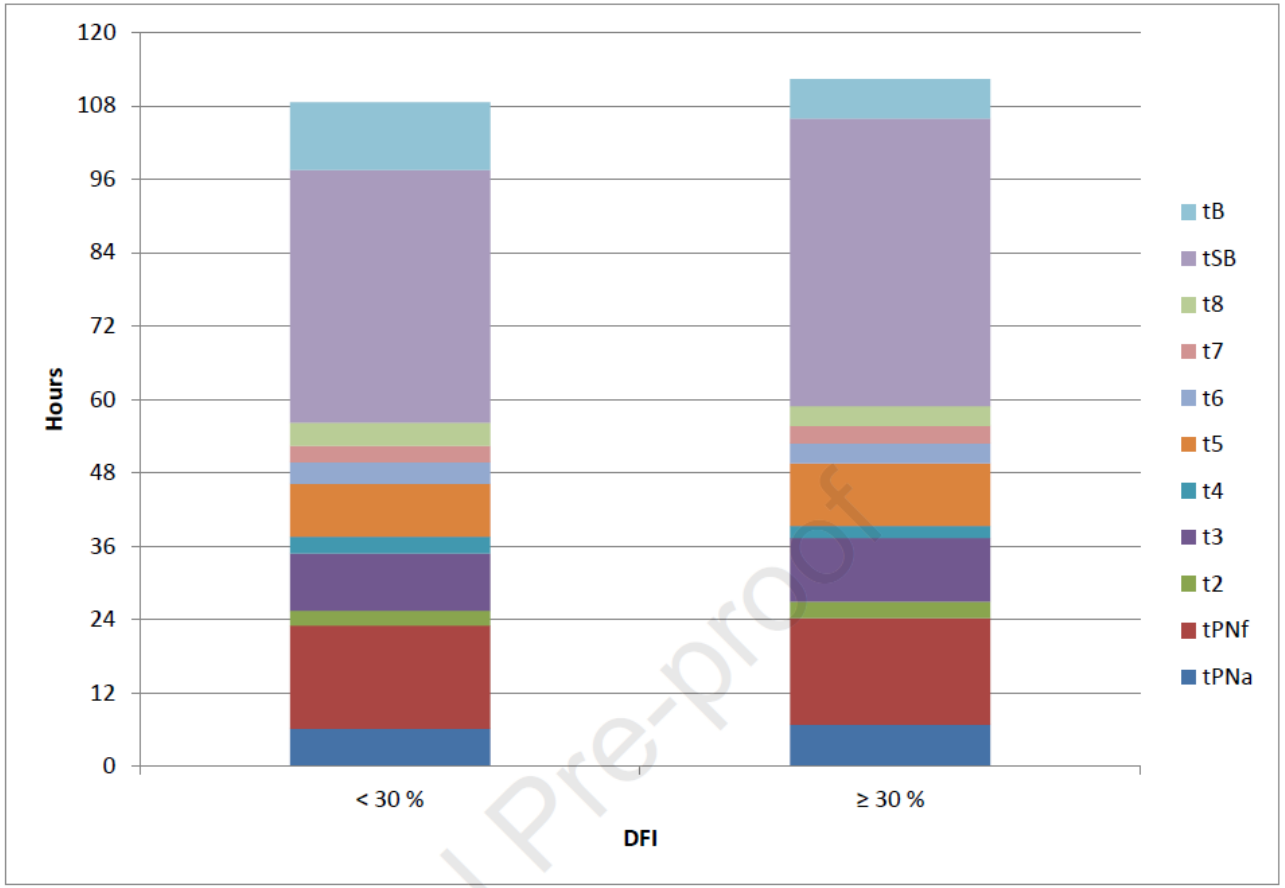
Morphokinetic data (hours)	<30% DFI (n=592)	≥30% DFI (n=386)	p-value
tPNa	6.1 ± 0.2	6.8 ± 0.2	0.030
tPNf	23.0 ± 0.3	24.2 ± 0.3	0.009
t2	25.4 ± 0.3	26.9 ± 0.3	0.002
t3	34.8 ± 0.3	37.3 ± 0.4	<0.001
t4	37.5 ± 0.4	39.3 ± 0.4	0.003
t5	46.2 ± 0.5	49.5 ± 0.6	<0.001
t6	49.7 ± 0.5	52.8 ± 0.6	0.001
t7	52.4 ± 0.6	55.6 ± 0.7	0.001
t8	56.2 ± 0.7	58.9 ± 0.8	0.017
tSB	97.5 ± 1.5	105.9 ± 1.7	0.002
tB	108.6 ± 0.8	112.4 ± 1.2	0.016

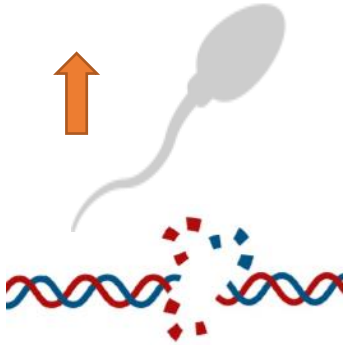
Note: Values are means ± standard deviation, unless otherwise noted. tPNa – timing to pronuclei appearance, tPNf – timing to pronuclei fading, t2 – timing to two cells, t3 – timing to three cells, t4 – timing to four cells, t5 – timing to five cells, t6 – timing to six cells, t7 – timing to seven cells, t8 – timing to eight cells, tSB – timing to start blastulation, tB – timing to blastulation (tB).

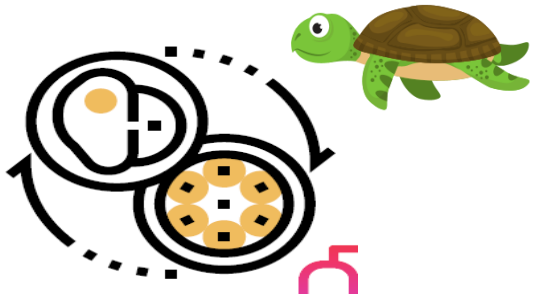
F&S Science (2021), doi: https://doi.org/10.1016/j.xfss.2021.10.001

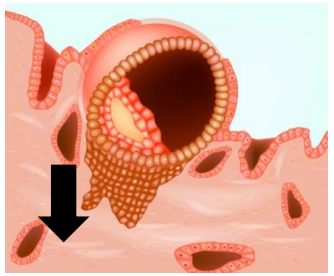
Marcadores morfocinéticos











F&S Science (2021), doi: https://doi.org/10.1016/j.xfss.2021.10.001

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ORIGINAL ARTICLE

First International Journal of Andrology ANDROLOGIA WILEY

Early and late paternal contribution to cell division of embryos in a time-lapse imaging incubation system

Amanda Souza Setti[1,2] | Daniela Paes de Almeida Ferreira Braga[1,2] | Livia Vingris[3] | Assumpto Iaconelli Jr.[2,4] | Edson Borges Jr.[2,4]

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- A abstinência ejaculatória foi inversamente correlacionada com a taxa de implantação.
- Relações inversas foram observadas entre os parâmetros do sêmen (contagem de espermatozoides, motilidade progressiva dos espermatozoides, contagem total de espermatozoides móveis e morfologia) e o tempo de eventos específicos durante o desenvolvimento embrionário.
- A morfologia do espermática também foi positivamente associada com a taxa de implantação e gravidez e chance de nascidos vivos

O aumento da idade paterna e da abstinência ejaculatória, e a baixa qualidade do sêmen se correlacionam com o retardo da clivagem e blastulação celular e impactam negativamente os resultados da injeção intracitoplasmática de espermatozoides.