REDLARA
RED LATINOAMERICANA DE REPRODUCCIÓN ASISTIDA

PEC ONLINE by REDLARA

# Preservação da Fertilidade
# Estratégias e Esquemas de Estímulo

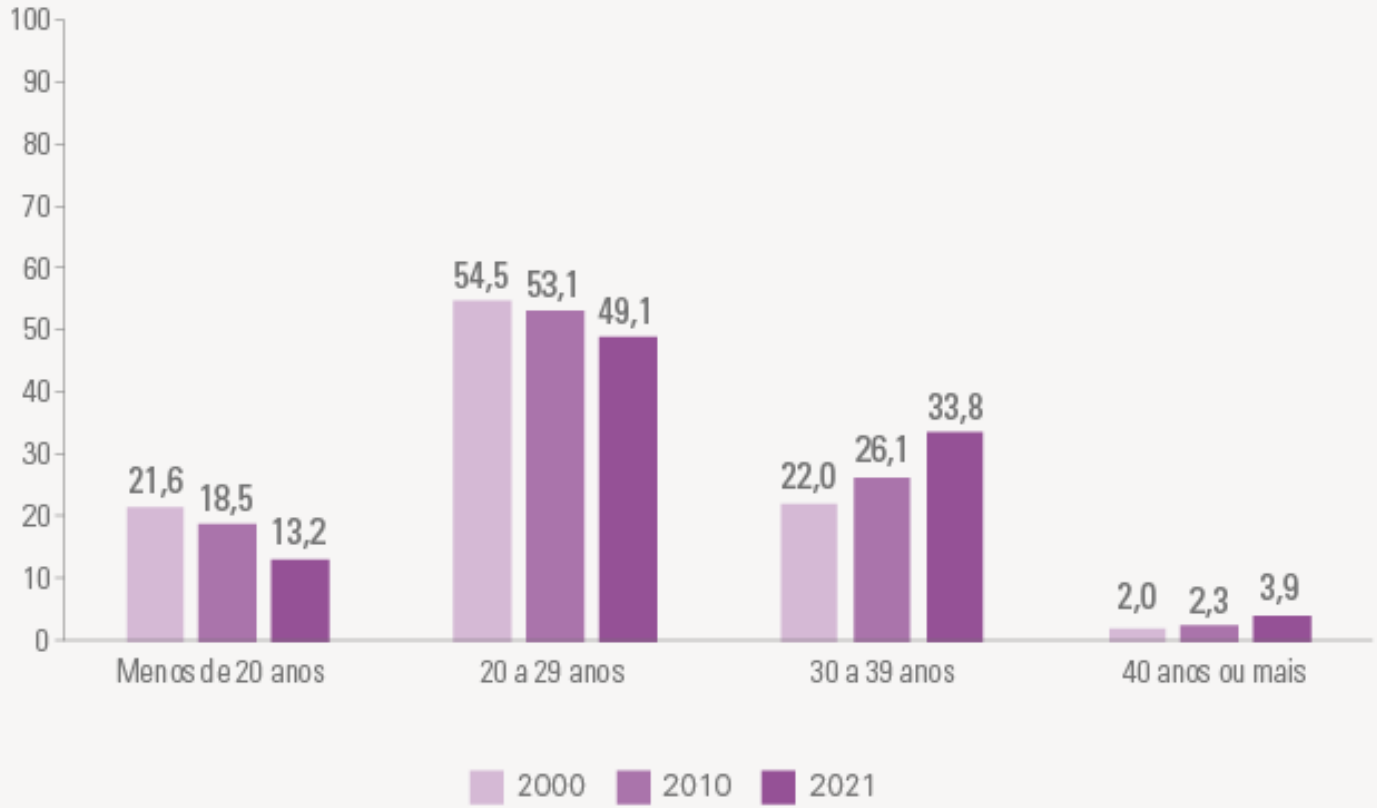
*Edson Borges Jr.*

FERTGROUP | FERTILITY

25 ANOS Instituto Sapientiae

## Distribuição dos nascimentos ocorridos no ano e registrados (%)

Segundo os grupos de idade da mãe | Brasil

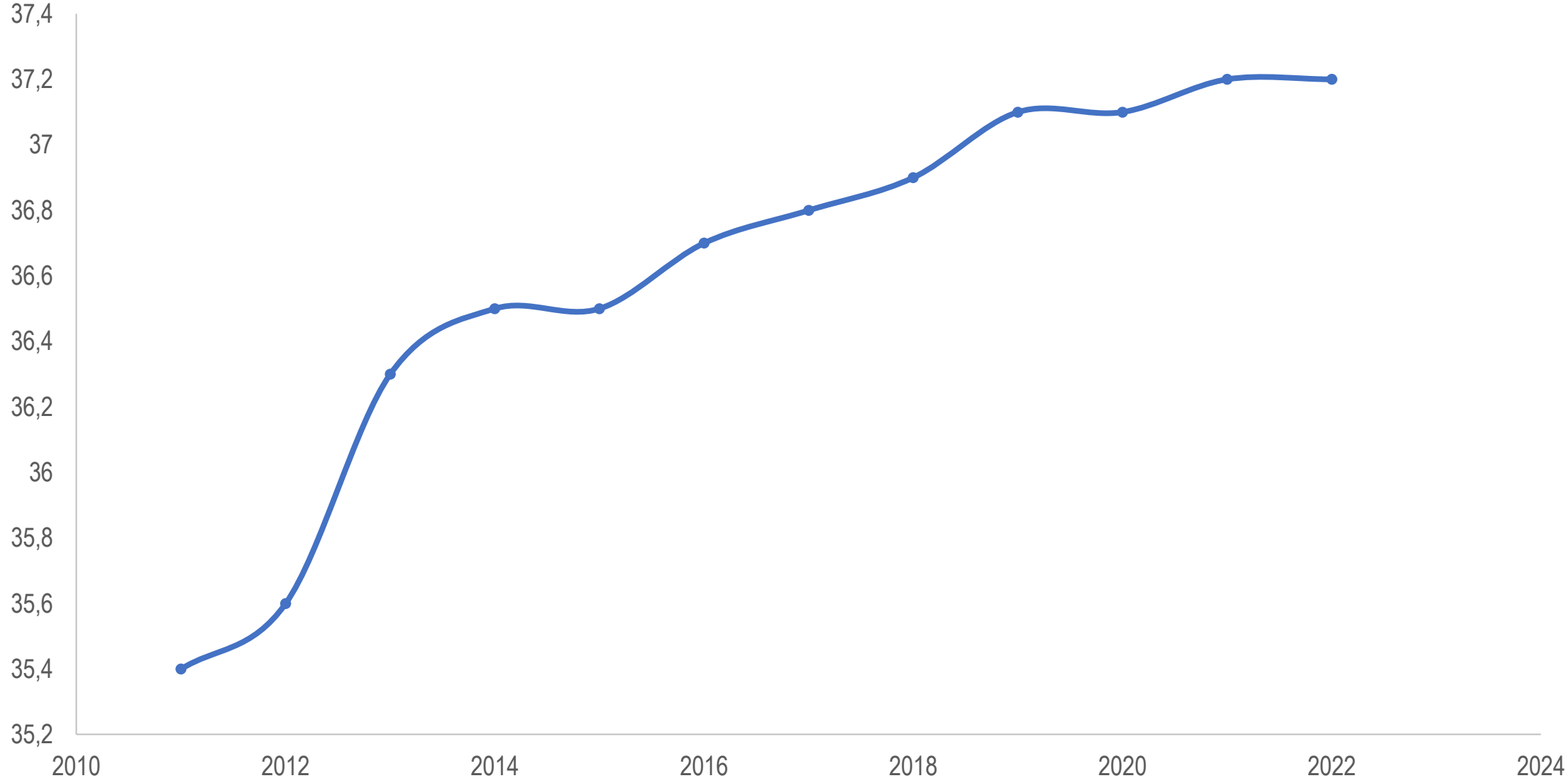



Fonte: Estatísticas do Registro Civil - 2000/2021

AGÊNCIA IBGE NOTÍCIAS IBGE

FERTGROUP

# Idade materna em ciclos de ICSI de 2010 a 2022



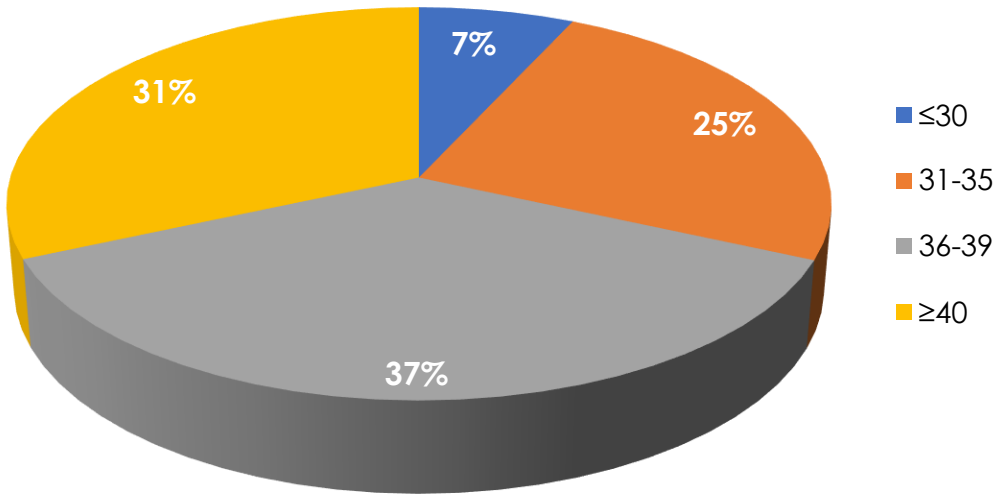

FERTGROUP | FERTILITY

Dados Fertility: 2010-2022

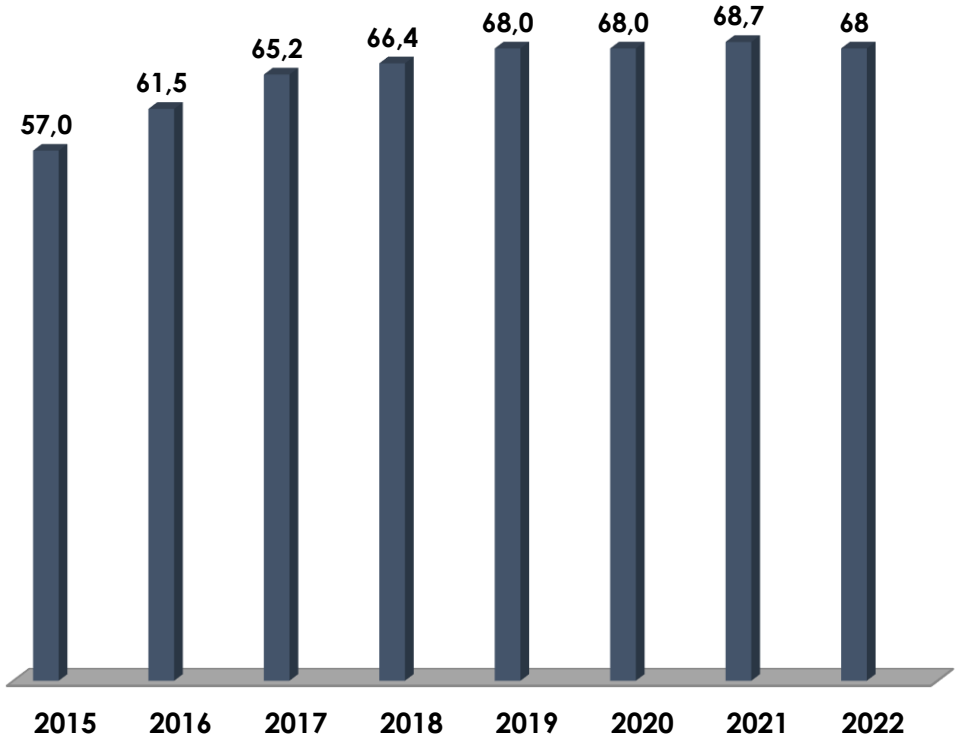
# *FERTILITY MEDICAL GROUP* - Resultados 2022

## Resultados ciclos de captação ovocitária - faixa etária

**Distribuição dos ciclos de Captação ovocitária por idade - 2022**

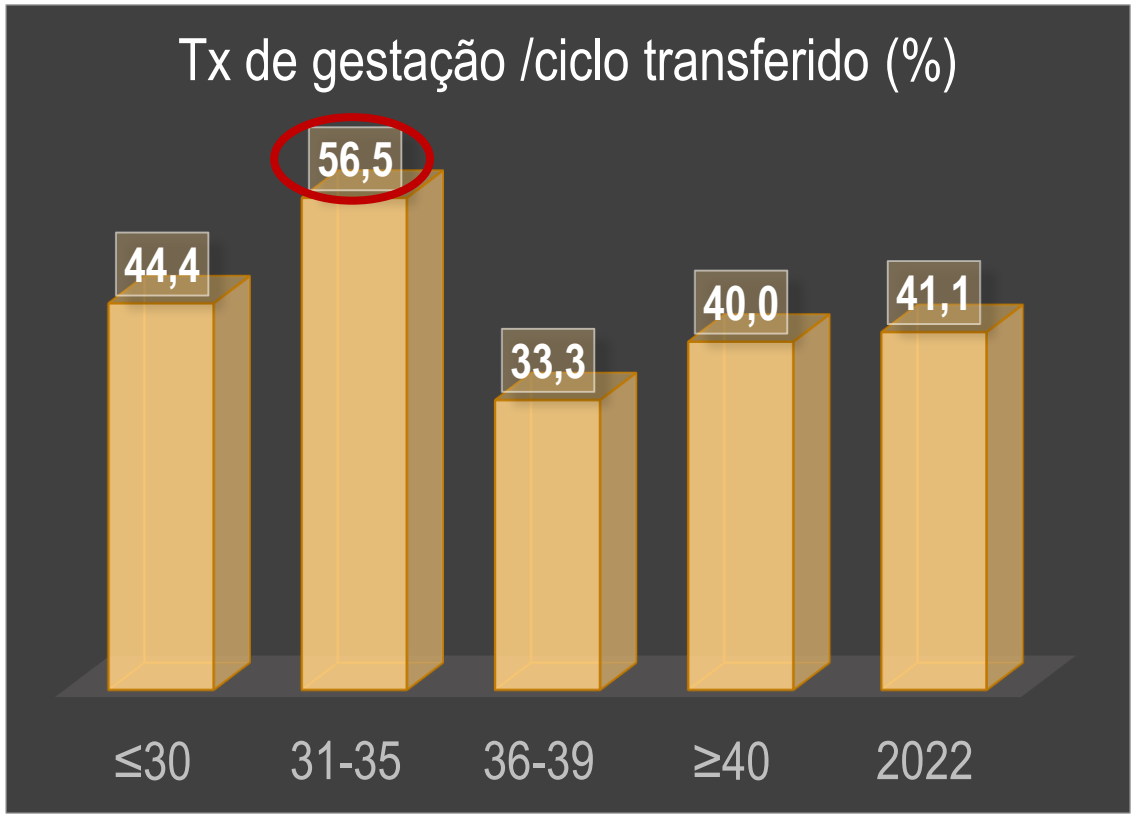


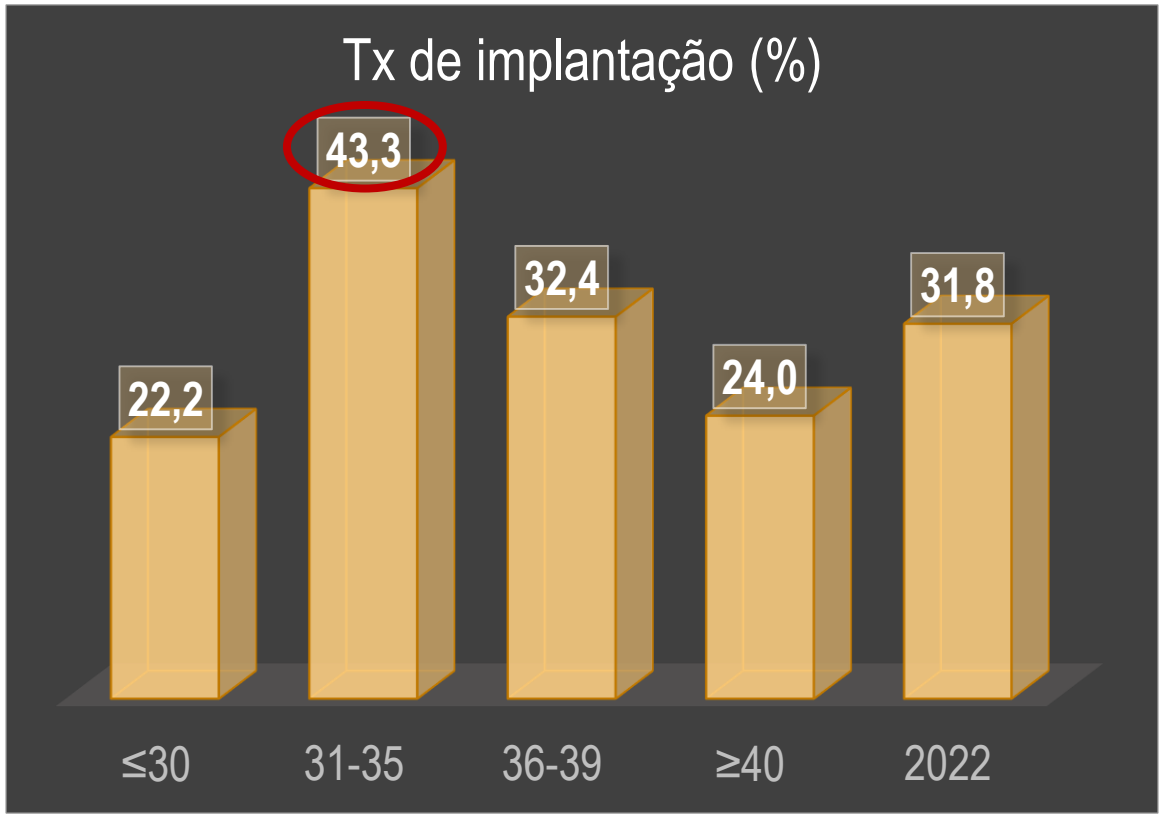

**Pacientes com idade ≥ 36 anos (%)**




FERTGROUP | FERTILITY

# Resultados ciclos de ICSI – Fertility 2022



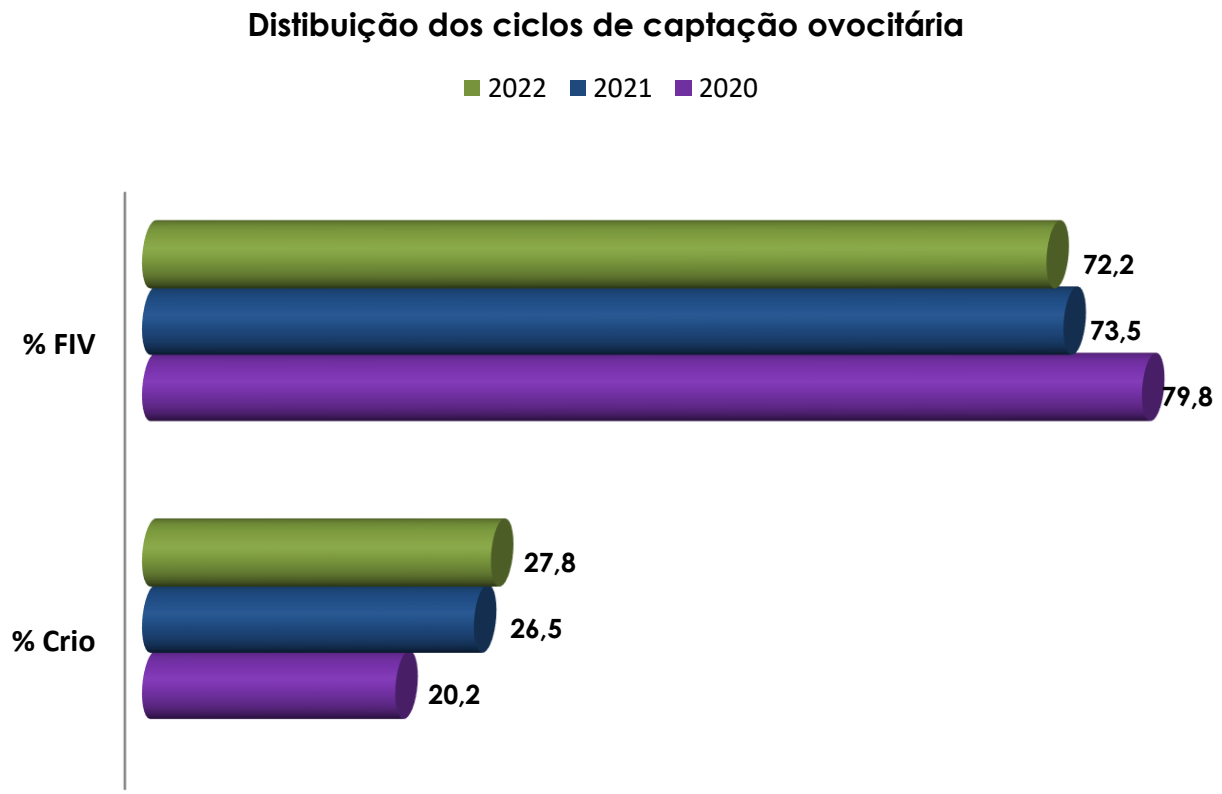




## Ciclos de transferência à fresco

FERTGROUP | FERTILITY

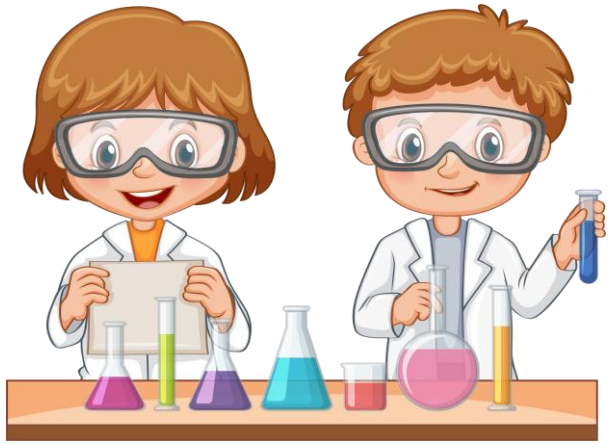
Dados Fertility

# *FERTILITY MEDICAL GROUP* - Resultados 2022




FERTGROUP | FERTILITY

# Preservação da fertilidade




Vitrificação de ovócitos em mulheres em risco de declínio da fertilidade não é mais considerada experimental de acordo com a ASRM

FERTGROUP | FERTILITY

ASRM. Mature oocyte cryopreservation: a guideline, 2013.*Fertility and Sterility. 2013*

# *Protocolos de Estímulo Ovariano*

FERTGROUP | FERTILITY

RBMO

ELSEVIER

REVIEW

# Use of progestins to inhibit spontaneous ovulation during ovarian stimulation: the beginning of a new era?

**BIOGRAPHY**

Antonio La Marca is Professor of Obstetrics and Gynaecology at the University of Modena and Reggio Emilia, Modena, Italy. His activity covers the whole field of reproductive medicine and surgery. He is the author of 160 articles in peer-reviewed journals and a recipient of competitively assigned research funds.

**Antonio La Marca**[1,*], **Martina Capuzzo**[1]

FERTGROUP | FERTILITY

Organization of a conventional ovarian stimulation (COS) protocol with a GnRH antagonist, versus a progestin primed ovarian stimulation (PPOS) protocol.

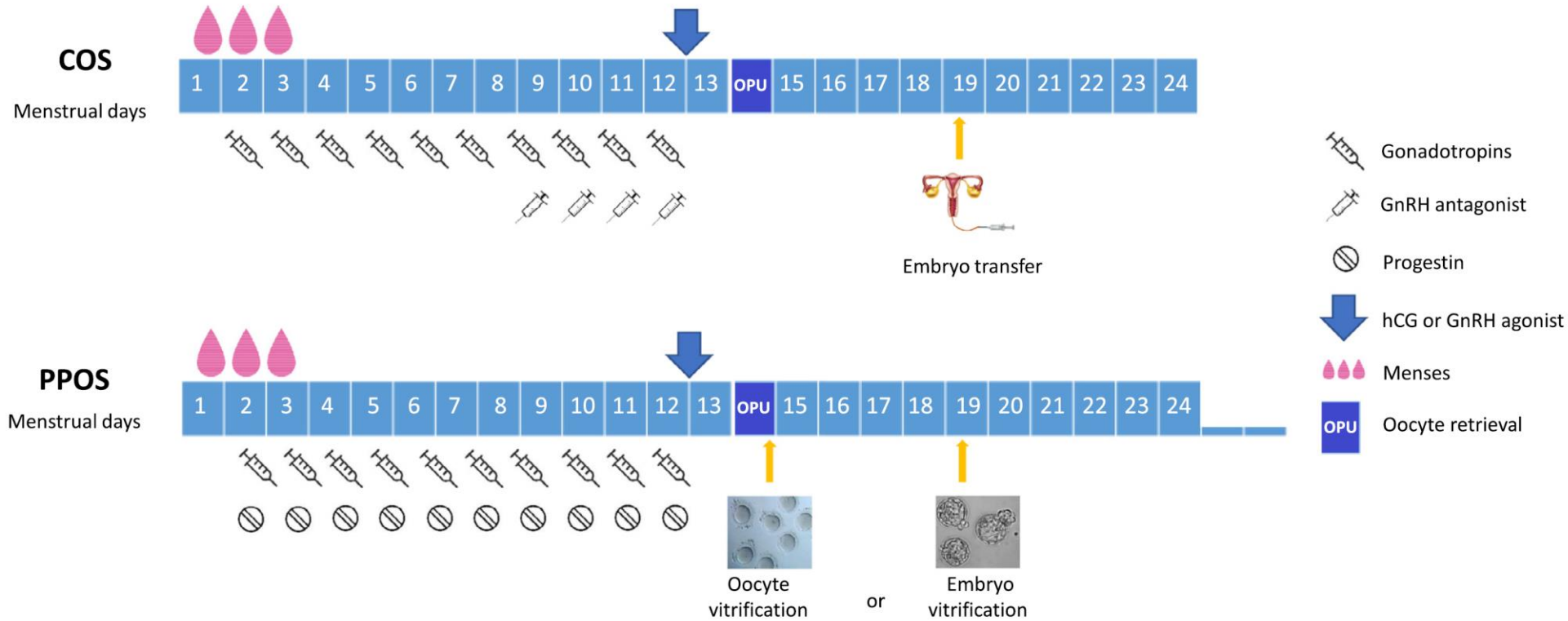
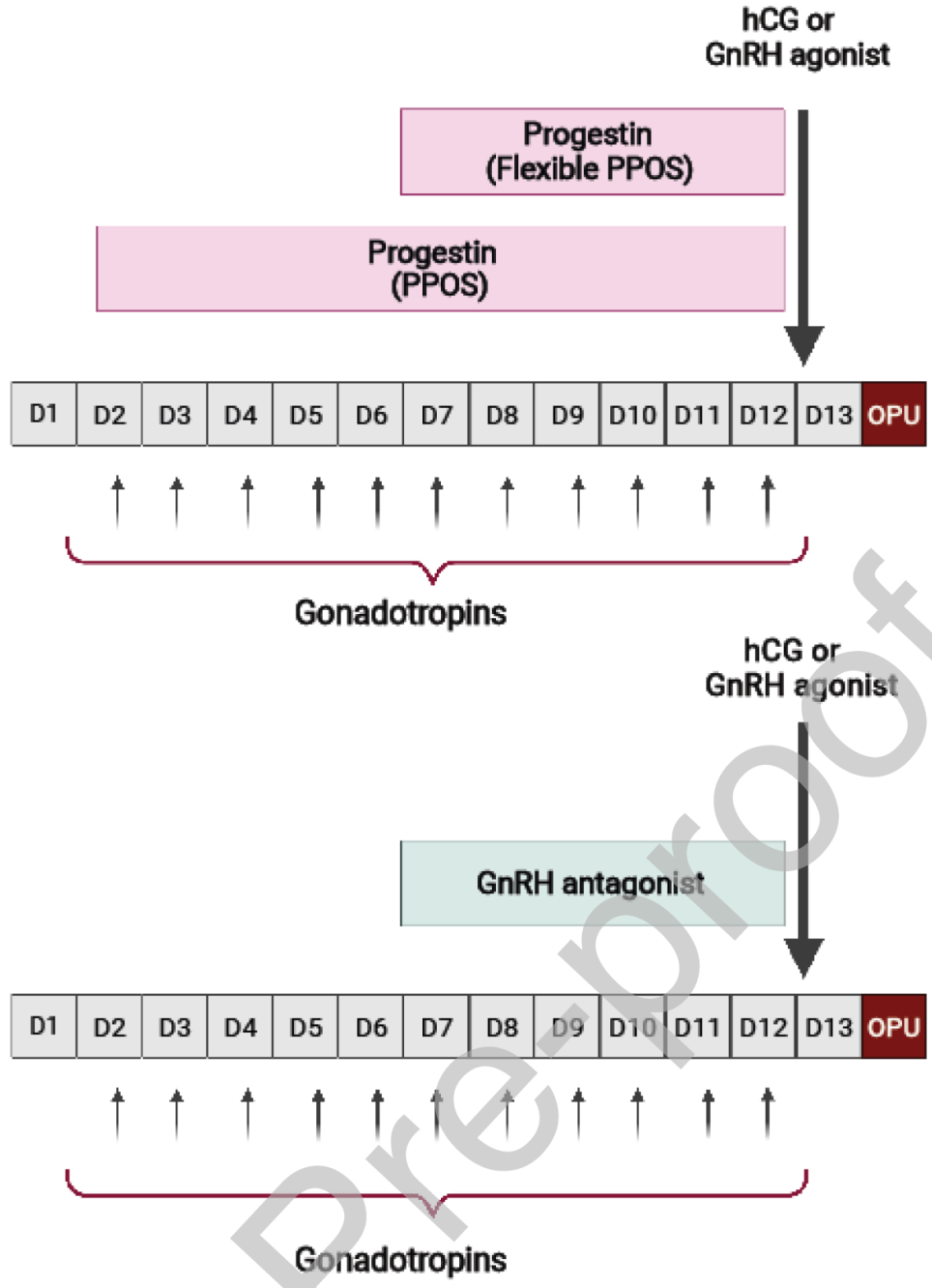



**FIGURE 1** Organization of a conventional ovarian stimulation (OS) protocol with gonadotrophin-releasing hormone (GnRH) antagonist versus a progestin-primed ovarian stimulation (PPOS) protocol. HCG, human chorionic gonadotrophin.

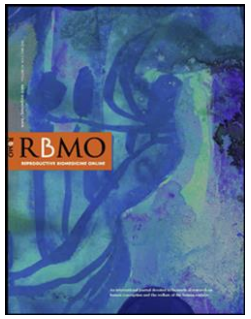





Progestin primed ovarian stimulation, for whom, when and how?

Baris Ata , Erkan Kalafat

PII: S1472-6483(23)00738-1
DOI: https://doi.org/10.1016/j.rbmo.2023.103639
Reference: RBMO 103639

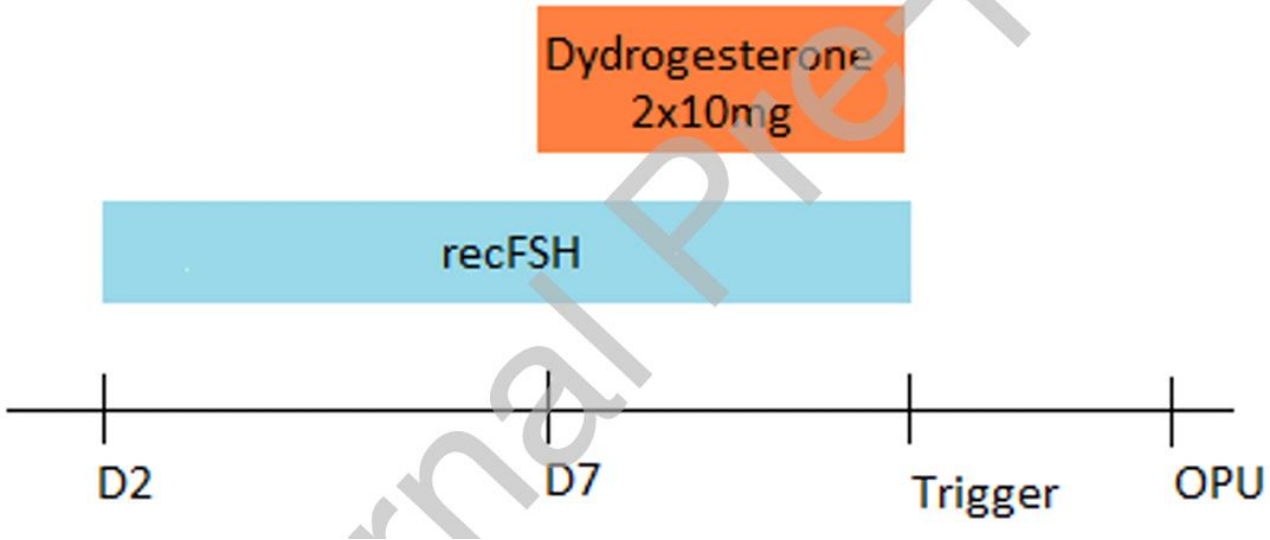



# Progestin primed ovarian stimulation using dydrogesterone from day 7 of the cycle onwards in oocyte donation cycles: a longitudinal study

S Hendrickx , N De Munck , S Mackens , S Ruttens , H Tournaye , M De Vos , C Blockeel

PII: S1472-6483(23)00831-3
DOI: https://doi.org/10.1016/j.rbmo.2023.103732
Reference: RBMO 103732





| | PPOS<br><br>(n=64)<br><br>Mean (SD)<br>Median (IQR) | GnRH antagonist<br><br>(n=64)<br><br>Mean (SD)<br>Median (IQR) | P-value* |
|---|---|---|---|
| Number COC | 19.7 (10.8)<br>17.5 (12.5-23.5) | 19.2 (8.3)<br>17 (13-25) | 0.5 |
| Number MII | 15.5 (8.4)<br>14.5 (10-19) | 16.2 (7.0)<br>14.5 (10-21) | 0.19 |
| Duration of stimulation (days) | 10.5 (1.5)<br>10 (10-11) | 10.8 (1.5)<br>10.5 (10-12) | 0.14 |
| Total dose of gonadotropins (IU) | 2271.9 (429.7)<br>2250 (2025-2475) | 2321.5 (403.4)<br>2250 (2175-2475) | 0.2 |

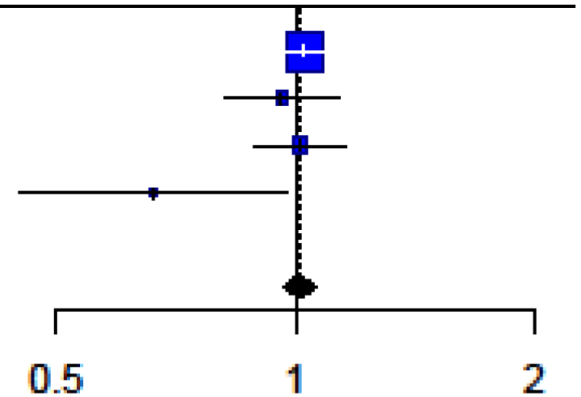




PII: S1472-6483(23)00831-3
DOI: https://doi.org/10.1016/j.rbmo.2023.103732
Reference: RBMO 103732

| Study | PPOS Events | PPOS Total | Conventional Events | Conventional Total | Weight | Risk Ratio MH, Random, 95% CI |
|---|---|---|---|---|---|---|
| Giles et al, 203 | 680 | 1175 | 3515 | 6233 | 77.3% | 1.03 [0.97; 1.08] |
| La Marca et al, 2020 | 96 | 195 | 302 | 590 | 8.3% | 0.96 [0.82; 1.13] |
| Wang et al, 2023 | 155 | 333 | 540 | 1177 | 12.9% | 1.01 [0.89; 1.16] |
| Pai et al, 2023 | 24 | 110 | 96 | 291 | 1.5% | 0.66 [0.45; 0.98] |
| **Total (95% CI)** | **1813** | | **8291** | | **100.0%** | **1.01 [0.97; 1.06]** |

Heterogeneity: $Tau^2 < 0.0001$; $Chi^2 = 5.21$, df = 3 (P = 0.16); $I^2 = 42\%$




Progestin primed ovarian stimulation, for whom, when and how?

Baris Ata , Erkan Kalafat

PII: S1472-6483(23)00738-1
DOI: https://doi.org/10.1016/j.rbmo.2023.103639
Reference: RBMO 103639

# Ovarian response markers lead to appropriate and effective use of corifollitropin alpha in assisted reproduction

Antonio La Marca *, Giovanni D'Ippolito



**Table 1** Characteristics of patients and outcome of stimulation in the ENGAGE and ENSURE trials.

| *Characteristic* | *ENGAGE*[a] | | *ENSURE*[b] | |
|---|---|---|---|---|
| | *150 μg corifollitropin alpha* (n = 756) | *200 IU recombinant FSH* (n = 750) | *100 μg corifollitropin alpha* (n = 268) | *150 IU recombinant FSH* (n = 128) |
| Age (years) | 31.5 ± 3.3 | 31.5 ± 3.2 | 30.9 ± 3.2 | 31.1 ± 3 |
| Bodyweight (kg) | 68.8 ± 7.6 | 68.4 ± 7.3 | 54.1 ± 4.2 | 54.4 ± 4.2 |
| Basal AFC | 12.8 ± 6.7 | 11.6 ± 6.0 | 11.8 ± 6.1 | 10.6 ± 5.3 |
| Follicles >11 mm on HCG day | 16.0 ± 7.0 | 13.9 ± 6.1 | 14.9 ± 6.6 | 12.9 ± 5.8 |
| Oocytes retrieved | 13.7 ± 8.2 | 12.5 ± 6.7 | 13.3 ± 7.3 | 10.6 ± 5.9 |

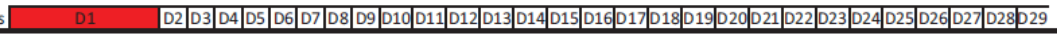
Values are mean ± standard deviation.
[a]Devroey et al. (2009).
[b]Corifollitropin Alfa ENSURE Study Group (2010).

http://dx.doi.org/10.1016/j.rbmo.2013.10.012

**Human Reproduction Update, Vol.23, No.2 pp. 211–220, 2017**
Advanced Access publication on January 6, 2017 doi:10.1093/humupd/dmw047

human reproduction update

# New stimulation regimens: endogenous and exogenous progesterone use to block the LH surge during ovarian stimulation for IVF




| | | | number of patients | duration of FSH (days) | total FSH dose (IU) | number of oocytes | number of embryos | implantation rate | pregnancy rate |
|---|---|---|---|---|---|---|---|---|---|
| **Luteal Phase Stimulation Regimens (LPS)** | | | | | | | | | |
| Buendgen *et al.*, 2013<br>Normal responders<br>Prospective case control study | LPS | uFSH 300 IU/day<br>Daily antagonist | 10 | 11.7 | 3495 | 8.8 | | | 10%<br>(1/10) |
| | Control | rFSH or HMG 150 to 225 IU/day<br>Daily antagonist fixed | 30 | 9.1 | 2014 | 10 | | | 20%<br>(6/30) |
| Martínez *et al.*, 2014<br>Normal responders, oocytes donor<br>Pilot study (cross-over) | LPS | rFSH 150 to 300 IU/day<br>Daily antagonist | 9 | 9.9 | 2147 | 22.5 | | | 58.3%<br>(recipients) |
| | Control | rFSH 150 to 300 IU/day<br>Daily antagonist flexible | 9 | 10.4 | 2261 | 16.7 | | | 62.5%<br>(recipients) |
| Wang, *et al.*, 2015<br>Normal responders<br>Retrospective study<br><br>* *compare to LPS* | LPS | HMG 225 IU/day<br>CC or letrozole<br>MPA 10 mg/day | 727 | 10.4 | 2319 | 10.9 | 4.6 | 35.5% | 46.2% |
| | Mild stimulation | CC or letrozole<br>HMG<br>Daily antagonist flexible | 830 | 9.6*<br>p<0.001 | 572*<br>p<0.001 | 3.7*<br>p<0.001 | 1.8*<br>p<0.001 | 34.8% | 43.7% |
| | Short agonist | Daily agonist<br>HMG 150 or more IU/day | 1385 | 8.2*<br>p<0.001 | 1583*<br>p<0.001 | 9.1*<br>p<0.001 | 3.7*<br>p=0.004 | 31.8%<br>p=0.012 | 41.9%*<br>p=0.041 |
| Li *et al.*, 2016<br>Poor responders<br>Retrospective study | LPS | CC 100 mg/day<br>HMG 75-150 IU/day | 33 | 10.3 | 1085 | 2.8 | 1.8 | 8.7%<br>(2/23) | 20% |
| | Mild stimulation | CC 100 mg/day<br>HMG 75-150 IU/day<br>Daily antagonist flexible | 98 | 7.8 | 703<br>p<0.05 | 2.0<br>p<0.05 | 1.3<br>p<0.05 | 10.8%<br>(11/102) | 17.7% |

FERTGROUP | FERTILITY

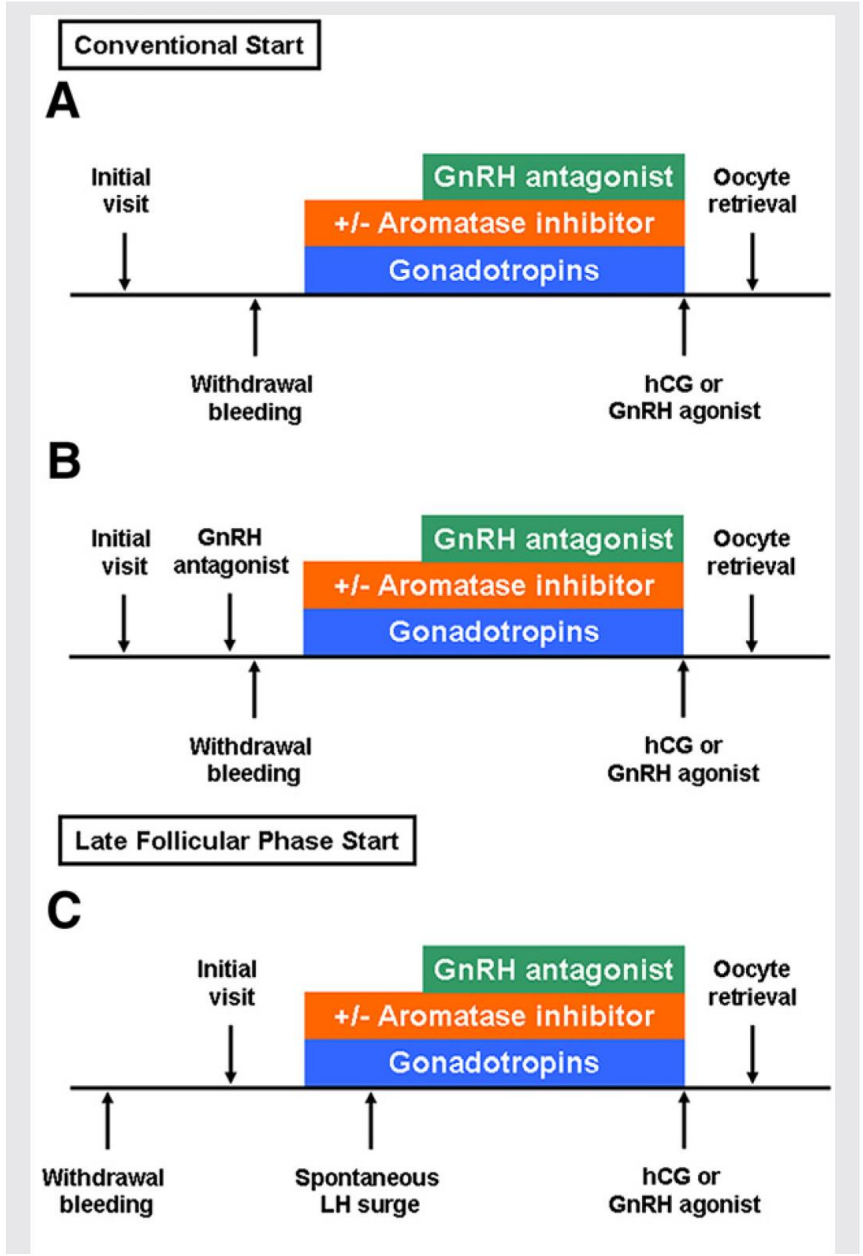

| | | | number of patients | duration of FSH (days) | total FSH dose (IU) | number of oocytes | number of embryos | implantation rate | pregnancy rate |
|---|---|---|---|---|---|---|---|---|---|
| **Random start stimulation regimens** | | | | | | | | | |
| Qin *et al.*, 2016<br>Not selected<br>Retrospective study | Conventional group<br>*start D2-D5* | CC 25 mg/day<br>HMG 150-225 IU/day<br>MPA 10 mg/day | 50 | 8.9 | 1342 | 6.6 | 4.8 | 30.7% | 41.5% (17/41) |
| ** compare to conventional* | Late follicular group<br>*start D6-D14* | CC 25 mg/day<br>HMG 150-225 IU/day<br>MPA 10 mg/day | 50 | 11.4*<br>p<0.001 | 1574*<br>p<0.001 | 5.9 | 4.0 | 30.2% | 45.5% (15/33) |
| | Luteal group<br>*start D15 onward* | CC 25 mg/day<br>HMG 150-225 IU/day | 50 | 10.9*<br>p<0.001 | 1795*<br>p<0.001 | 5.9 | 4.0 | 27.1% | 38.9% (14/36) |

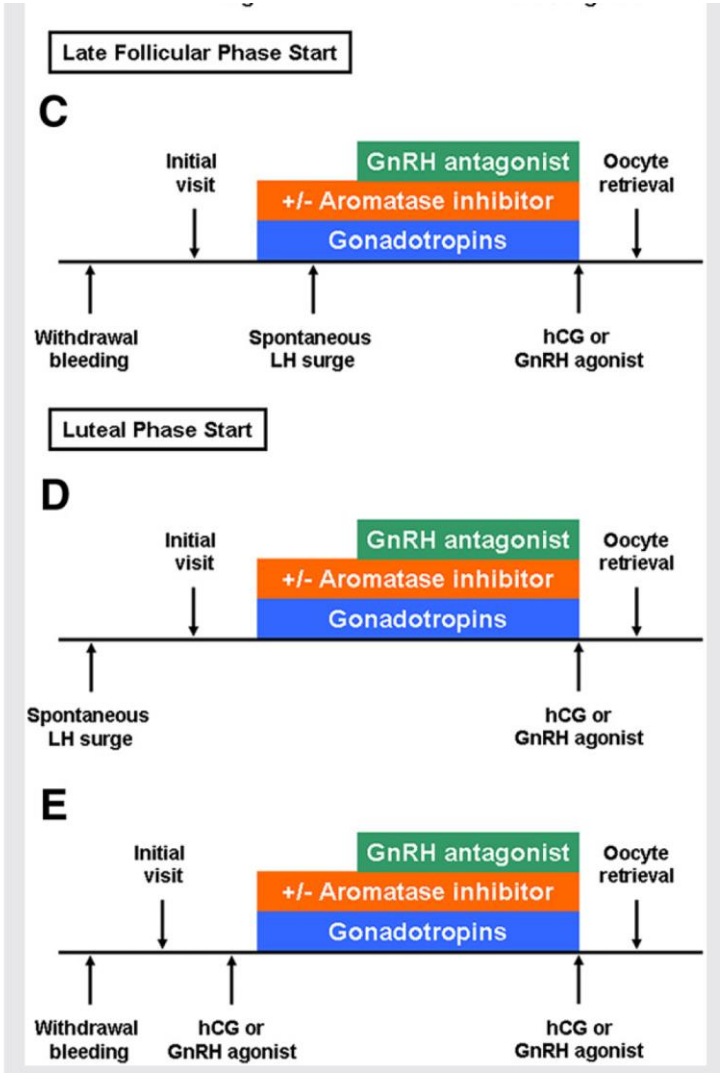
CC = clomiphene citrate
MPA = Medroxyprogesterone acetate

HCG trigger | agonist trigger | oocyte retrieval

FERTGROUP | FERTILITY

## FIGURE 1




Fertility and Sterility® Vol. 99, No. 6, May 2013

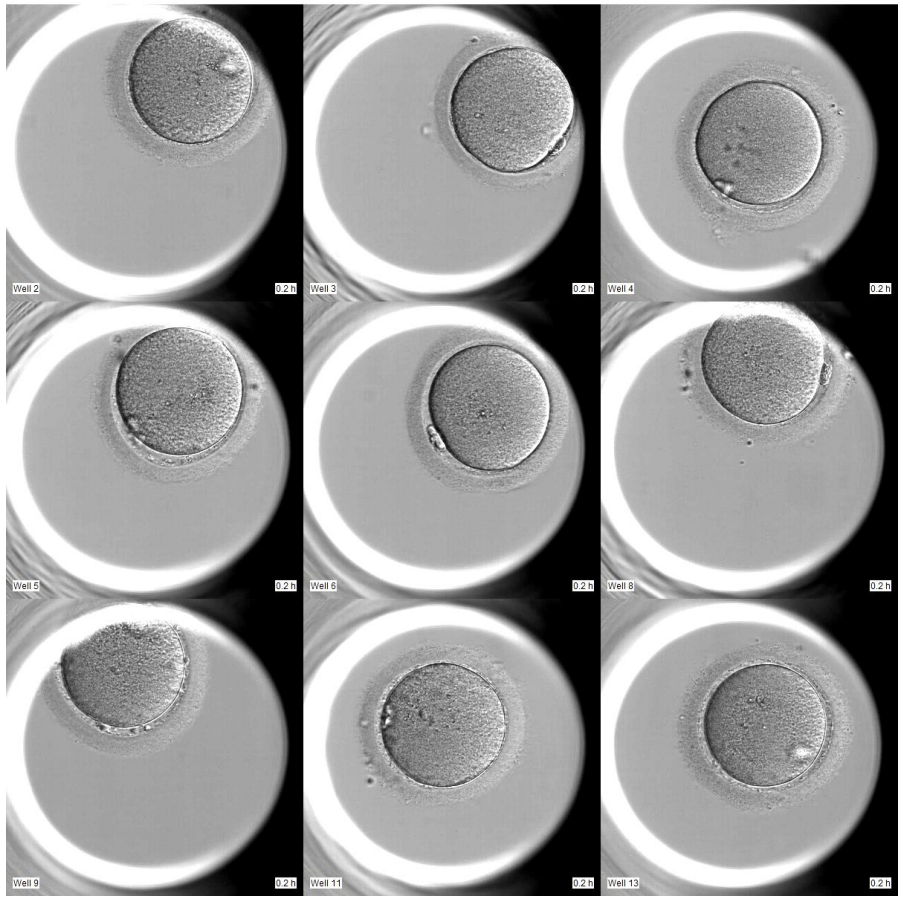
FERTGROUP

# *Embryoscope*


FERTGROUP | FERTILITY

# *Embryoscope FERTILITY*

FERTILITY MEDICAL GROUP




FERTGROUP | FERTILITY

# Journal Pre-proof


Progesterone-primed cycles result in slower embryos without compromising implantation potential and with the advantages of oral administration and potential cost reduction

Daniela Braga, DVM, PhD, Amanda Setti, M.Sc, Edward Carrilho, MD, Patrícia Guilherme, M.Sc, Assumpto Iaconelli, Jr., MD, Edson Borges, Jr., MD, PhD

PII: S2666-335X(23)00072-1

DOI: https://doi.org/10.1016/j.xfss.2023.12.001

Reference: XFSS 175

**Table 1.** Comparison of demographic data and cycle characteristics between the progestin-primed group and the GnRH antagonist group

| Variable | | Progestin-primed | GnRH antagonist | p value |
|---|---|---|---|---|
| Cycles | | **118** | **118** | |
| Female age (years) | | 36.7 ± 3.8 | 36.9 ± 5.5 | 0.452 |
| Male age (years) | | 39.1 ± 6.4 | 38.2 ± 3.7 | 0.325 |
| Female BMI (kg/m$^2$) | | 23.5 ± 3.5 | 24.8 ± 3.3 | 0.145 |
| Total dose of FSH | Follitropin alfa (UI) | 2423.1 ± 1021.4 | 2563.5 ± 855.4 | 0.234 |
| | Follitropin delta (µg) | 149.4 ± 40.8. | 151.3 ± 33.9 | 0.424 |
| Aspirated follicles (n) | | 11.2 ± 1.2 | 12.7 ± 1.1 | 0.308 |
| Retrieved oocytes (n) | | 8.2 ± 0.7 | 10.1 ± 0.9 | 0.136 |
| Oocyte yield (%) | | 72.9 ± 2.3 | 75.7 ± 2.1 | 0.356 |
| Mature oocytes (n) | | 6.1 ± 0.7 | 7.6 ± 0.6 | 0.135 |
| Mature oocytes (%) | | 78.7 ± 2.3 | 73.6 ± 2.7 | 0.149 |
| Fertilization (%) | | 70.9 ± 2.8 | 73.3 ± 3.2 | 0.573 |
| Blastocyst formation (%) | | 50.3 ± 3.7 | 55.1 ± 4.4 | 0.402 |
| Transferred embryos (n) | | 1.6 ± 0.6 | 1.5 ± 0.5 | 0.542 |

Note: Values are means ± standard errors, unless otherwise noted. ICSI – intracytoplasmic sperm injection; BMI – body mass index; FSH – follicle stimulating hormone

**Table 3:** Comparison of intracytoplasmic sperm injection (ICSI) clinical outcomes between the progestin-primed group and the GnRH antagonist group

| Variable | Progestin-primed group | GnRH antagonist group | p value |
|---|---|---|---|
| **Cycles** | **118** | **118** | |
| **Cancelation rate (%)** | 18/118 (15.2) | 3/118 (2.5) | 0.005 |
| **Implantation rate (%)** | 64.6 ± 6.1 | 44.4 ± 6.3 | 0.002 |
| **Pregnancy rate per started cycles (%)** | 64/118 (54.2) | 56/118 (47.4) | 0.251 |
| **Pregnancy rate (%)** | 64/100 (64.0) | 56/115 (48.6) | 0.128 |
| **Miscarriage rate (%)** | 2/64 (3.1) | 5/56 (8.3_ | 0.643 |

**Table 2:** Comparison of morphokinetic parameters between the progestin-primed group and the GnRH antagonist group

| Morphokinetic parameter (h) | Progestin-primed | GnRH antagonist | p value |
|---|---|---|---|
| **Embryos** | **1360** | **1408** | |
| **tPNa** | 7.0 ± 0.2 | 6.2 ± 0.2 | **0.008** |
| **tPNf** | 24.3 ± 0.3 | 23.6 ± 0.2 | 0.142 |
| **t2** | 27.2 ± 0.3 | 26.2 ± 0.3 | **0.045** |
| **t3** | 37.5 ± 0.4 | 36.6 ± 0.3 | 0.130 |
| **t4** | 39.2 ± 0.4 | 38.8 ± 0.3 | 0.493 |
| **t5** | 50.1 ± 0.6 | 49.2 ± 0.5 | 0.316 |
| **t6** | 52.8 ± 0.6 | 52.5 ± 0.5 | 0.653 |
| **t7** | 56.4 ± 0.7 | 54.7 ± 0.5 | **0.046** |
| **t8** | 60.4 ± 0.8 | 58.7 ± 0.6 | 0.120 |
| **tM** | 89.3 ± 0.8 | 87.1 ± 0.6 | **0.045** |
| **tSB** | 101.5 ± 0.8 | 98.9 ± 0.1 | **0.012** |
| **tB** | 111.0 ± 0.8 | 108.5 ± 0.7 | **0.034** |
| **s1** | 2.6 ± 0.0 | 2.7 ± 0.0 | 0.250 |
| **s2** | 1.9 ± 0.2 | 2.4 ± 0.2 | 0.172 |
| **s3** | 10.5 ± 0.6 | 10.1 ± 0.4 | 0.623 |
| **cc2** | 10.7 ± 0.2 | 10.3 ± 0.2 | 0.170 |
| **cc3** | 12.9 ± 0.4 | 12.7 ± 0.30 | 0.897 |
| **KIDScore** | 5.4 ± 0.0 | 5.9 ± 0.1 | 0.465 |

# Freeze-all, oocyte vitrification, or fresh embryo transfer? Lessons from an egg-sharing donation program

Daniela Paes Almeida Ferreira Braga, D.V.M., Ph.D.,[a,b,c] Amanda Souza Setti, M.Sc.,[a,c] Rita Cássia Sávio Figueira, Ph.D.,[a] Matheus de Castro Azevedo, B.Sc.,[a] Assumpto Iaconelli Jr., M.D.,[a] Edson Guimarães Lo Turco, D.V.M., Ph.D.,[b] and Edson Borges Jr., M.D., Ph.D.[a,b,c]

[a] Fertility–Medical Group; [b] Disciplina de Urologia, Área de Reprodução Humana, Departamento de Cirurgia, Universidade Federal de São Paulo; and [c] Instituto Sapientiae–Centro de Estudos e Pesquisa em Reprodução Humana Assistida, São Paulo, Brazil

Fertility and Sterility® Vol. 106, No. 3, September 1, 2016 0015-0282/$36.00

http://dx.doi.org/10.1016/j.fertnstert.2016.05.004

Comparação dos resultados de ciclos de reprodução assistida quando transferidos embriões frescos ou vitrificados, ou quando transferidos embriões provenientes de ovócitos vitrificados

FERTGROUP | FERTILITY

## TABLE 1

**Comparison of the characteristics of patients and cycles, embryo quality on days 2 and 3, and blastocyst formation rate of the Fresh Oocyte Cycles Group and the Banked Donor Egg Group.**

| | Group | | |
|---|---|---|---|
| **Variable** | **Fresh oocyte cycles** | **Banked donor egg** | ***P* value** |
| Cycles (n) | 425 | 425 | |
| Embryos (n) | 4,585 | 2,128 | |
| Female age (y) | 31.3 ± 3.3 | 41.4 ± 5.5 | <.001 |
| Male age (y) | 35.1 ± 5.5 | 41.2 ± 7.2 | <.001 |
| No. of follicles | 33.7 ± 12.9 | – | NC |
| Sperm concentration ($\times 10^6$/mL) | 46.5 ± 51.0 | 44.3 ± 39.9 | .477 |
| Sperm progressive motility (%) | 44.0 ± 15.5 | 45.4 ± 16.8 | .212 |
| Sperm morphology (%) | 1.5 ± 2.3 | 1.4 ± 1.8 | .484 |
| No. of oocytes | 25.8 ± 9.7 | – | NC |
| No. of metaphase II oocytes | 19.4 ± 7.8 | – | NC |
| Oocyte survival rate (%) | – | 94.4% | NC |
| Injected oocytes | 12.8 ± 4.8 | 4.3 ± 1.3 | NC |
| Embryos | 10.8 ± 4.3 | 3.4 ± 3.0 | NC |
| Fertilization rate | 85.4 ± 14.4 | 80.2 ± 18.2 | <.001 |
| Transferred embryos | 1.6 ± 1.0 | 1.8 ± 1.1 | <.001 |
| High-quality embryos on D2, % (n) | 43.2 (1,984/4,585) | 31.5 (670/2,128) | <.001 |
| High-quality embryos on D3, % (n) | 38.6 (1,770/4,585) | 30.7 (655/2,128) | <.001 |
| Blastocyst formation, % (n) | 41.1 (1,885/4,585) | 36.6 (779/2,128) | <.001 |

*Note*: Values are mean ± SD, unless otherwise noted. D2 = second day of embryo development; D3 = third day of embryo development; NC = not comparable.

*Braga. Embryo or oocyte vitrification? Fertil Steril 2016.*

## TABLE 2

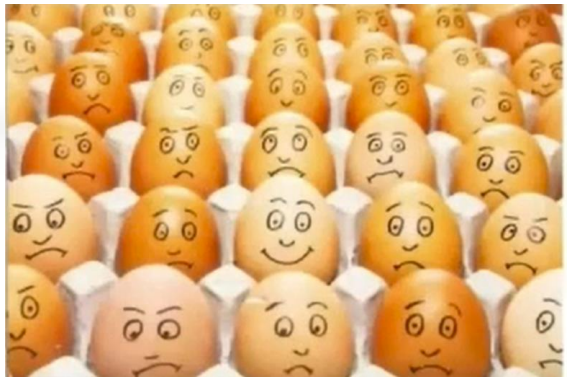
**Comparison of oocyte/embryo survival rate, total usable embryos rate, and clinical outcomes considering the status of transferred embryos.**

| Variable | Group | | | *P* value |
|---|---|---|---|---|
| | Fresh cycles (n = 128) | Thaw cycles (n = 297) | Banked donor egg (n =425) | |
| Oocyte/embryo survival rate | NA | 98.6 (3,165/3,209)[b] | 95.1 (2,635/2,770)[a] | < .001 |
| Total usable embryos rate | 36.4 (501/1,376)[c] | NA | 39.7 (846/2,128)[d] | .047 |
| Pregnancy rate | 39.8 (51/128)[e] | 71.4 (212/297)[f] | 49.6 (211/425)[g] | < .001 |
| Miscarriage rate | 9.4 (5/53) | 10.8 (23/212) | 12.8 (21/164) | .679 |
| Implantation rate | 37.2 ± 41.1[h] | 67.3 ± 38.4[i] | 43.0 ± 41.0[j] | < .001 |

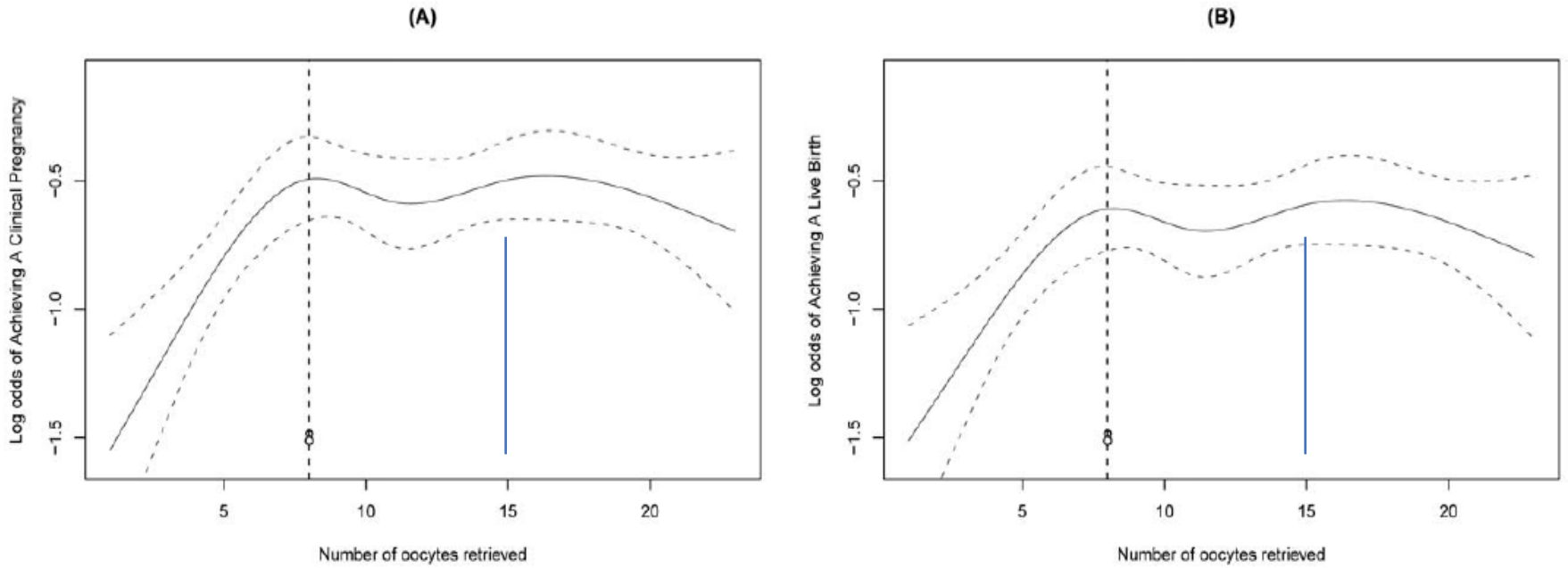
*Note*: Data presented as % (n/N) or mean ±SD. Fresh oocytes and fresh embryos = fresh cycles group; fresh oocytes and vitrified embryos = thaw cycles group; and vitrified oocytes (banked donor egg group). Superscripts: a ≠ b; c ≠ d; e ≠ f ≠ g; h ≠ i ≠ j. NA = not applicable.

*Braga. Erratum. Fertil Steril 2016.*

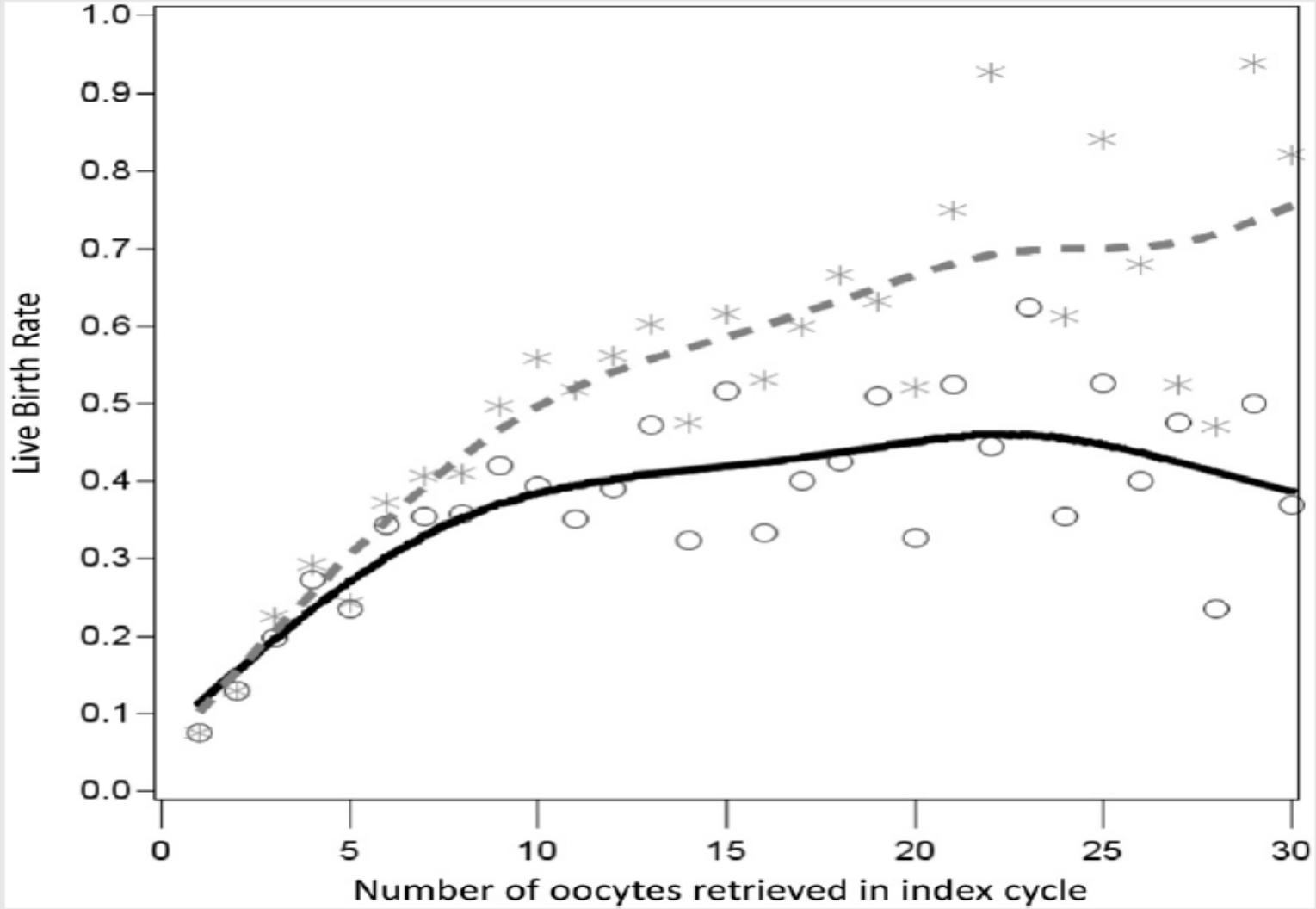
# Qual o número ideal de óvulos num ciclo de FIV/ICSI?



# Não há vantagens em > 15 óvulos




Cai Q, Wan F, Huang K, Zhang H (2013) Does the Number of Oocytes Retrieved Influence Pregnancy after Fresh Embryo Transfer?. PLoS ONE 8(2): e56189.




The relationship of live-birth rate in the index cycle (○) and the cumulative live-birth rate (*) across all (fresh and frozen) cycles per oocyte retrieved. The superimposed smoothed lines show the live-birth rate in the index cycle (*solid line*) and live-birth rate across all cycles (*broken line*) in relation to the number of oocytes retrieved.

*Vaughan. The more oocytes the better. Fertil Steril 2016.*

FERTGROUP

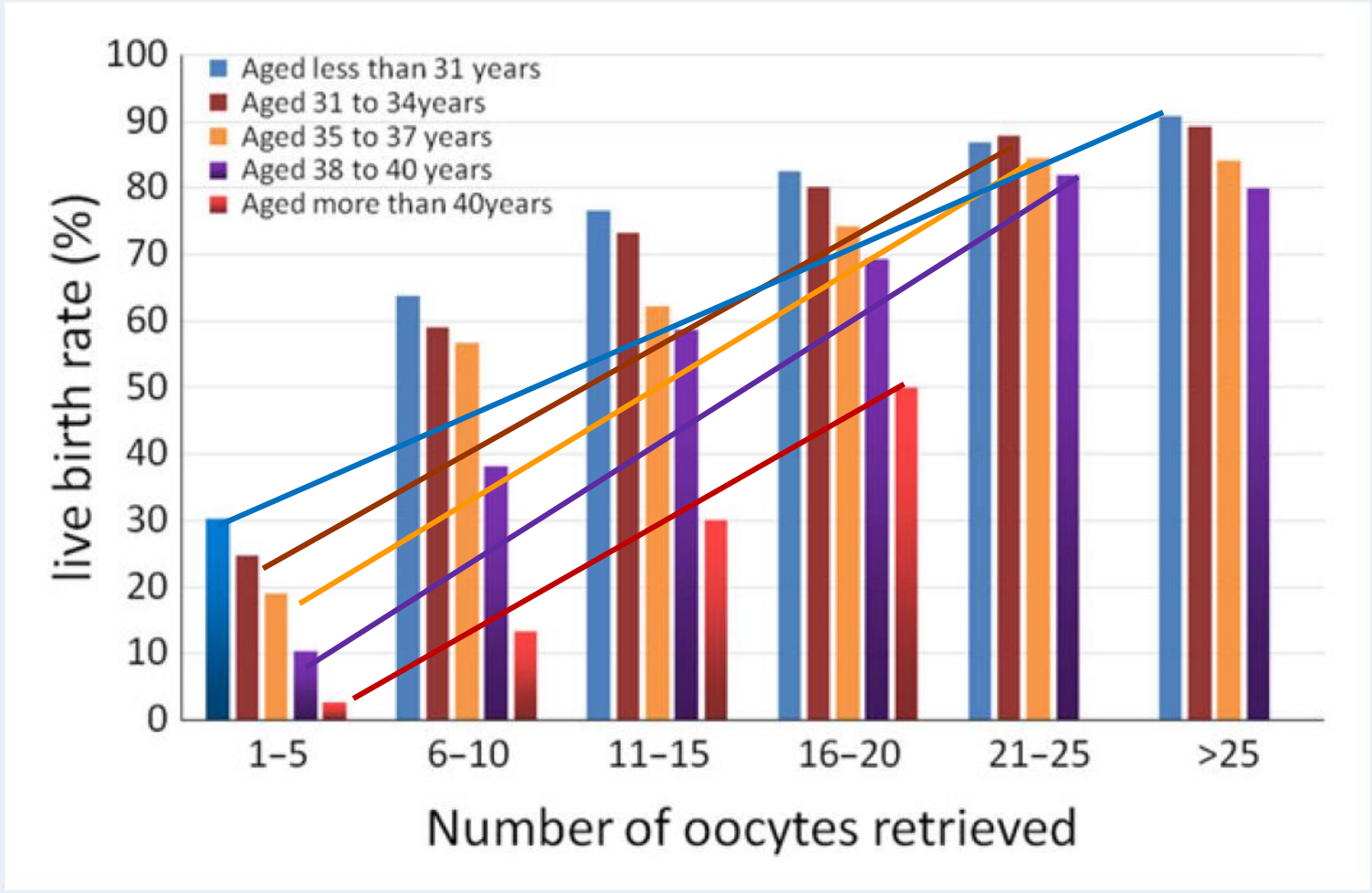



**Figure 2** LBRs after the first complete cycle, stratified by age and the number of oocytes retrieved.

Human Reproduction, pp. 1–6, 2018
doi:10.1093/humrep/dey044

human reproduction ORIGINAL ARTICLE *Reproductive epidemiology*

## Live birth rates in the first complete IVF cycle among 20 687 women using a freeze-all strategy

Qianqian Zhu, Qiuju Chen, Li Wang, Xuefeng Lu, Qifeng Lyu, Yun Wang*, and Yanping Kuang*

Department of Assisted Reproduction, Shanghai Ninth People's Hospital Affiliated to JiaoTong University School of Medicine, Shanghai, China

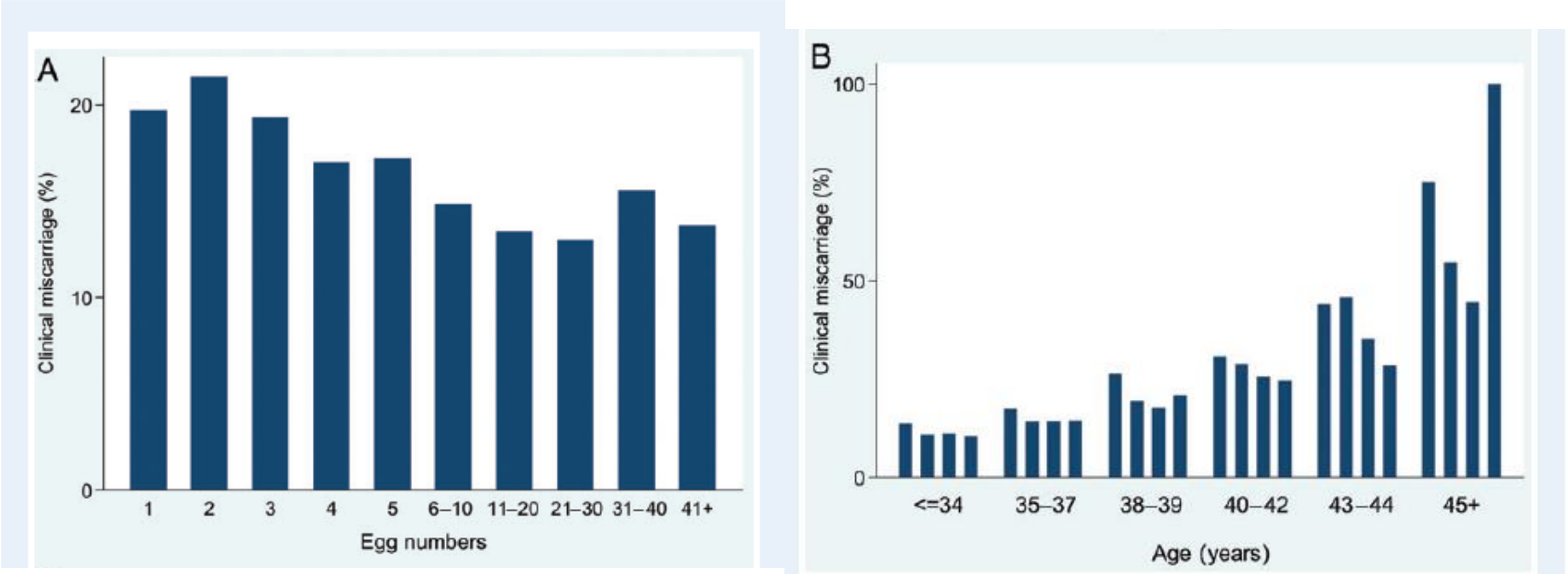
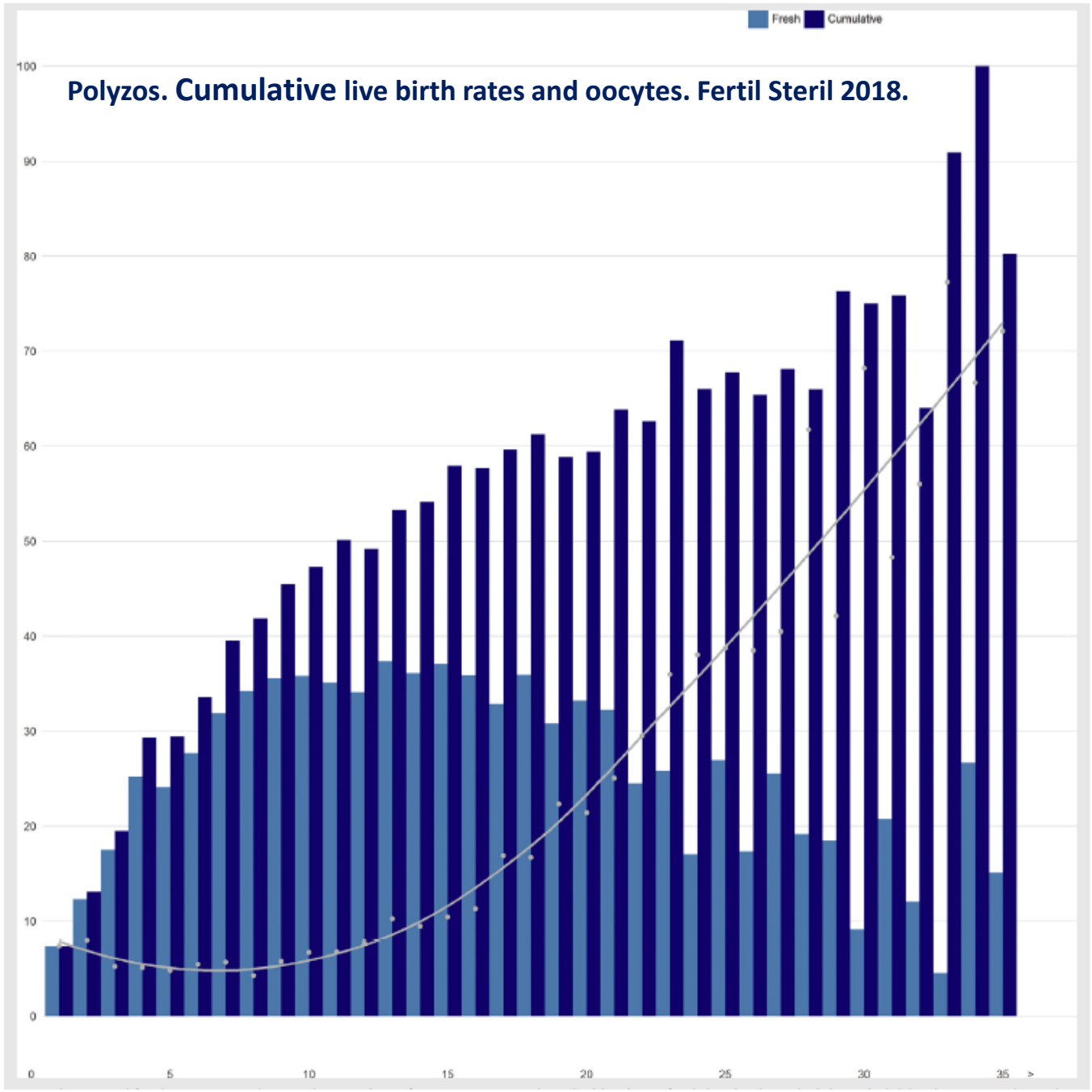


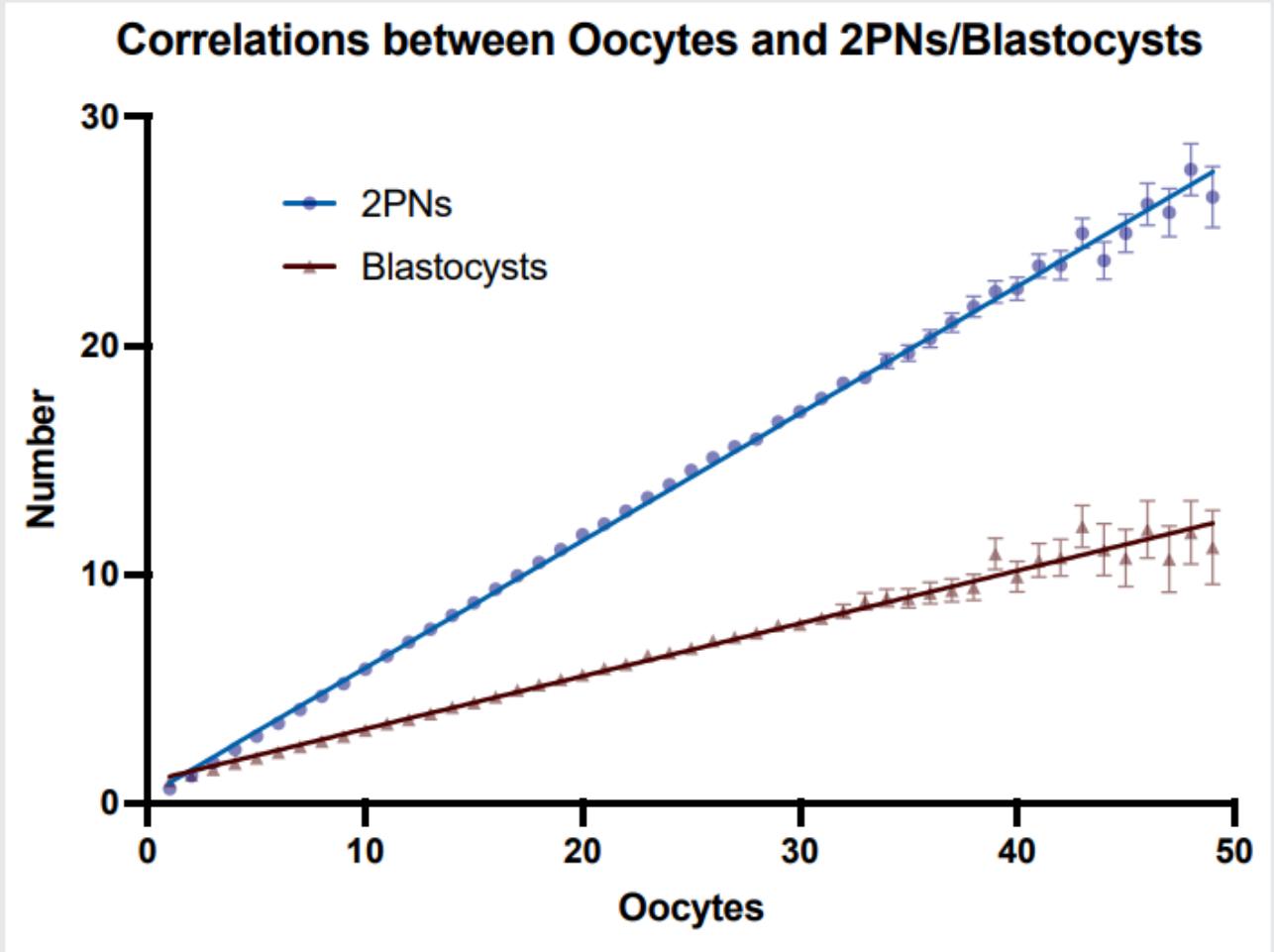

**Figure 3** Relationship between oocyte number and clinical miscarriage rate. (**A**) Overall association. (**B**) Stratified by age group. Each age group was divided according to oocyte number; from left to right: 1–3 oocytes, 4–9 oocytes, 10–14 oocytes, ≥15 oocytes.

Sunkara, HR 2014, Human Reprod 2009



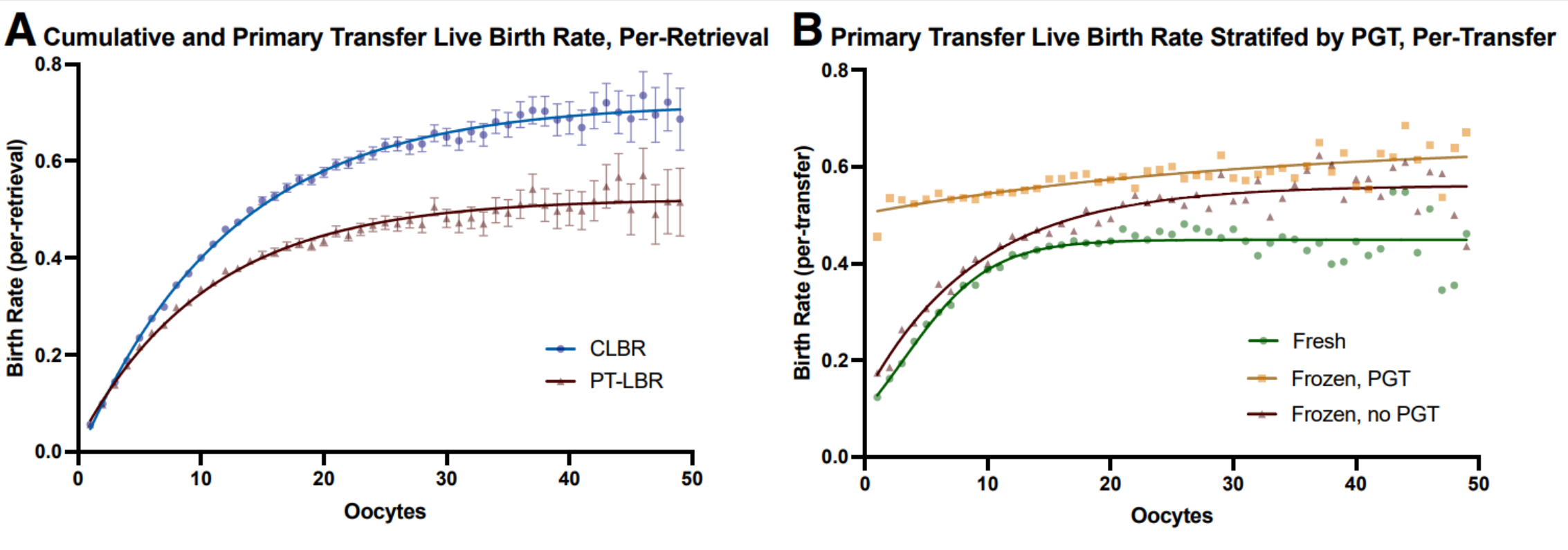

**Polyzos. Cumulative live birth rates and oocytes. Fertil Steril 2018.**

FERTGROUP | FER




Linear correlations between oocytes retrieved (x-axis) and fertilized oocytes (2PNs, normally fertilized oocytes) and blastocysts (y-axis). There was a strong positive linear correlation between oocytes and 2PNs ($r = 0.86$, $P<.01$) and between oocytes and blastocysts ($r = 0.85$, $P<.01$).

*Fanton. More eggs lead to higher birth rates. Fertil Steril 2023.*



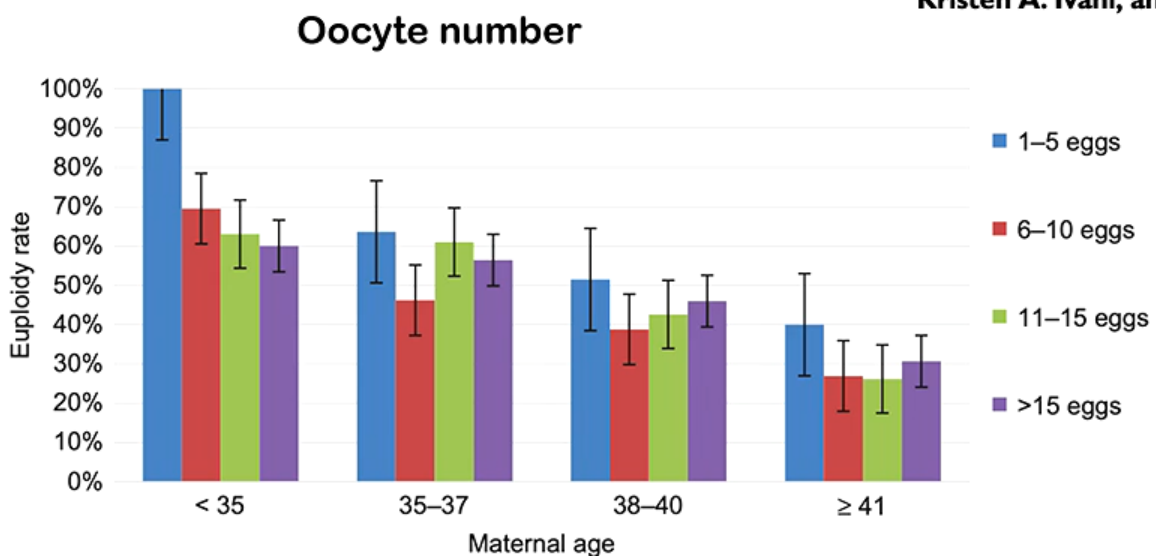

Relationships between birth rate and oocytes retrieved. (A) The cumulative live birth rate (CLBR) per-retrieval cycle increased with the number of oocytes retrieved, and the primary transfer live birth rate (PT-LBR) per retrieval increased until approximately 15 oocytes, at which point it began to plateau. (B) The PT-LBR per transfer stratified by fresh, frozen transfers with preimplantation genetic testing (PGT), and frozen transfers without PGT.

*Fanton. More eggs lead to higher birth rates. Fertil Steril 2023.*

# Euploidy rates

## High gonadotropin dosage does not affect euploidy and pregnancy rates in IVF PGS cycles with single embryo transfer

**Oleksii O. Barash*, Mary D. Hinckley, Evan M. Rosenbluth, Kristen A. Ivani, and Louis N. Weckstein** Hum Reprod 2017



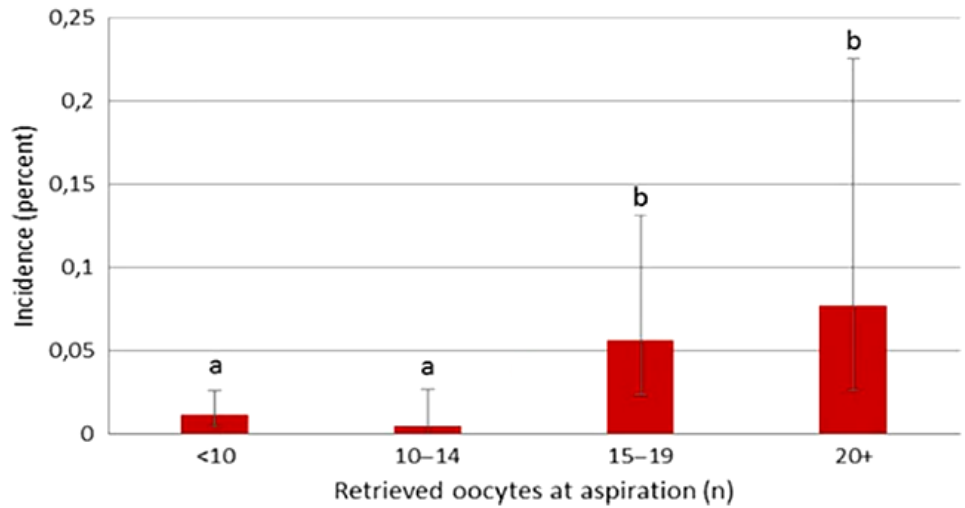
## The number of oocytes retrieved during IVF: a balance between efficacy and safety

Åsa Magnusson[1,*], Karin Källen[2], Ann Thurin-Kjellberg[1], and Christina Bergh[1]

77 956 fresh IVF and 39 387 FETs

1. **CLBR** ⇧ up to **20 oocytes** – then evens out
2. **OHSS** increases rapidly > **18 oocytes**
3. **Thromboembolic events** rare
   BUT occurs if >**15 oocytes**

### Thromboembolic events




Magnusson et al. Hum Reprod 2018

# DADOS FERTILITY

Congelamento social de ovócitos entre 2010 a 2023: 1332 ciclos de 1000 pacientes

**Dados demográficos e características dos ciclos de congelamento social de ovócitos (n=1332 ciclos)**

| Variável | Média |
|---|---|
| Idade ao congelamento | 36,6 anos |
| IMC médio | 23,7 kg/m2 |
| Folículos aspirados | 12,9 |
| Ovócitos obtidos | 9,2 |
| Taxa de recuperação ovocitária | 67,3% |
| Taxa de maturação ovocitária | 69,6% |
| Ovócitos congelados | 6,4 |

FERTGROUP | FERTILITY

# DADOS FERTILITY

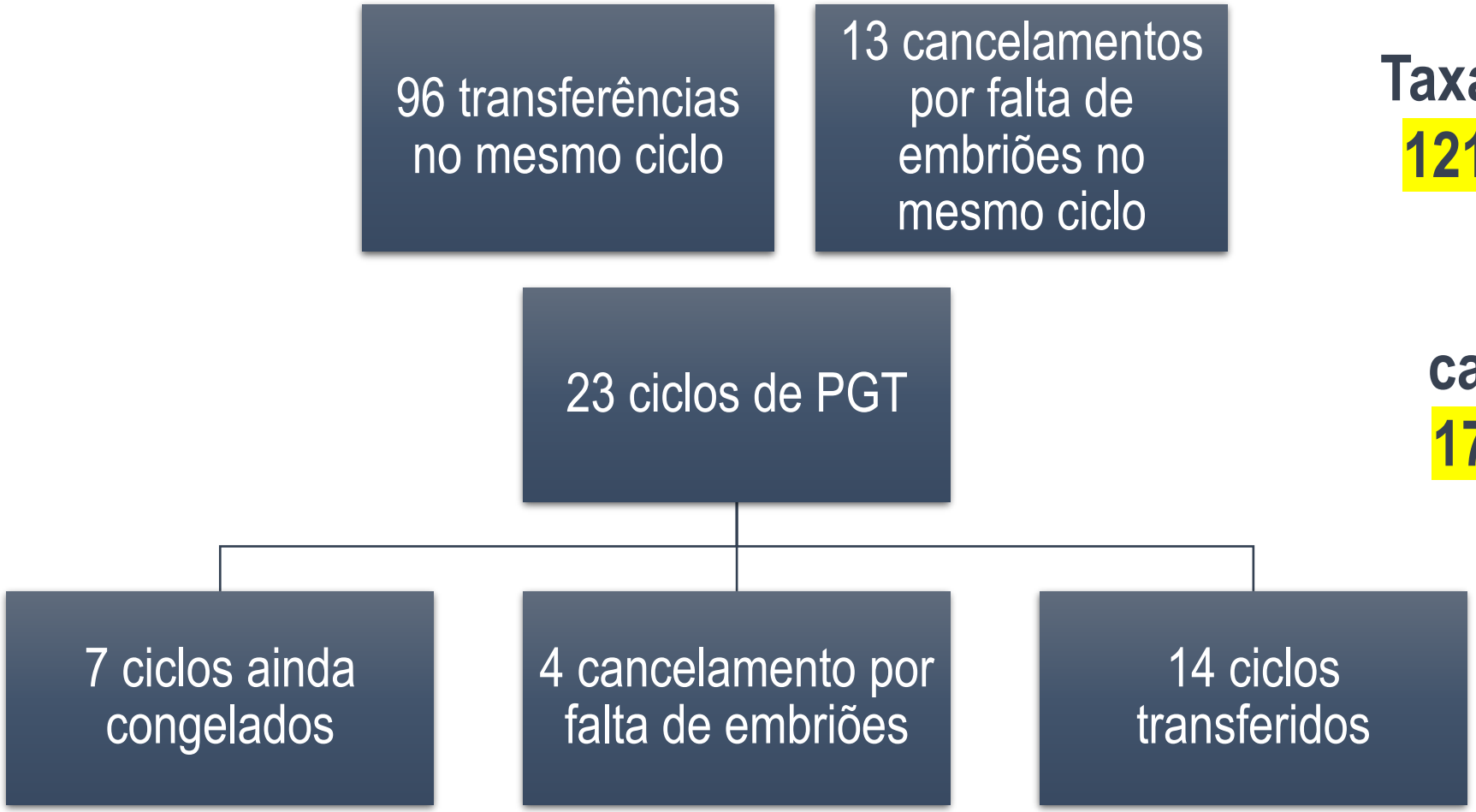
## Congelamento social de ovócitos entre 2010 a 2023 - Descongelamento: 132 ciclos de 121 pacientes

**Dados demográficos e características dos ciclos congelamento social de ovócitos em que houve descongelamento**

| Variável | Média |
|---|---|
| Idade ao congelamento | 37,1 anos |
| IMC ao congelamento | 24.6 kg/m2 |
| Folículos aspirados | 15,9 |
| Média de ovócitos obtidos | 11,5 |
| Taxa de recuperação ovocitária | 68,8% |
| Taxa de maturação ovocitária | 71,9% |
| Duração de armazenamento | 19,5 meses |
| Idade ao descongelamento | 38,6 anos |
| Taxa de sobrevivência | 91,6% |
| Ovócitos injetados | 7,1 |
| Taxa de fertilização | 82,4% |

# DADOS FERTILITY

Congelamento social de ovócitos entre 2010 a 2023 - Descongelamento: 132 ciclos de 121 pacientes




**Taxa de utilização:**
**121/1000 (12,1%)**

**Taxa de cancelamento:**
**17/125 (13,6%)**

FERTGROUP | FERTILITY

## RESULTADOS GERAIS POR CICLOS TRANSFERIDOS (110)

Taxa de gestação: 47/110 (42,7%)

Taxa de implantação: 37,1%

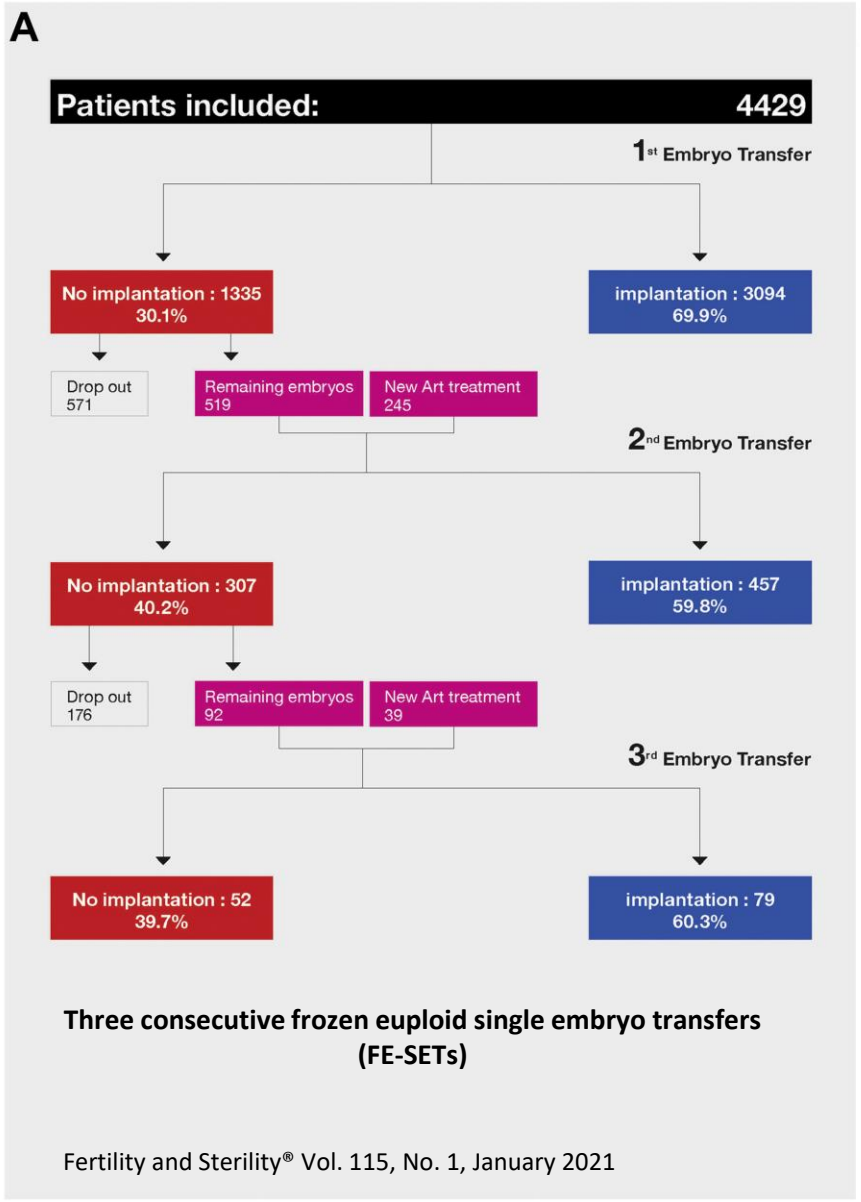
Taxa de aborto: 6/47 (12,7%)

## RESULTADOS GERAIS POR CICLOS DE PGT (14)

Taxa de gestação: 9/14 (64,3%)

Taxa de implantação: 60,7%

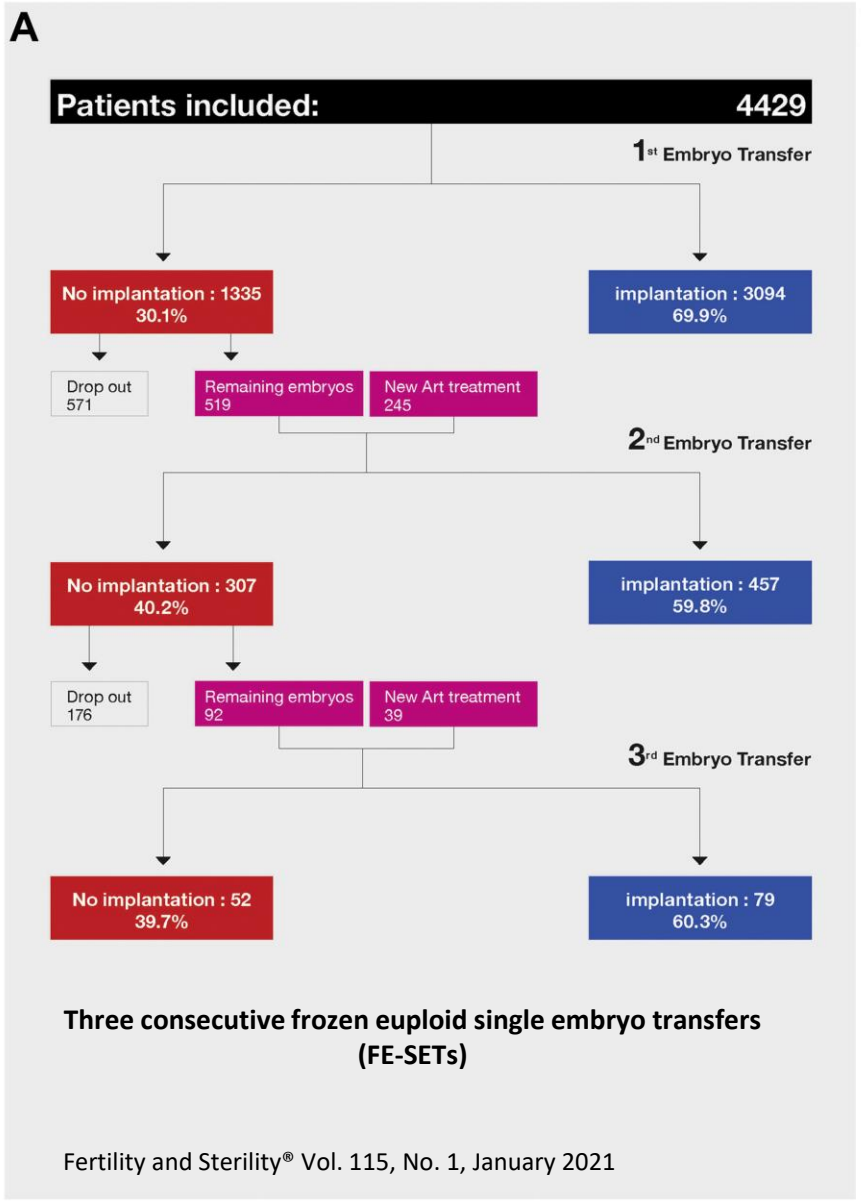
Taxa de aborto: 0



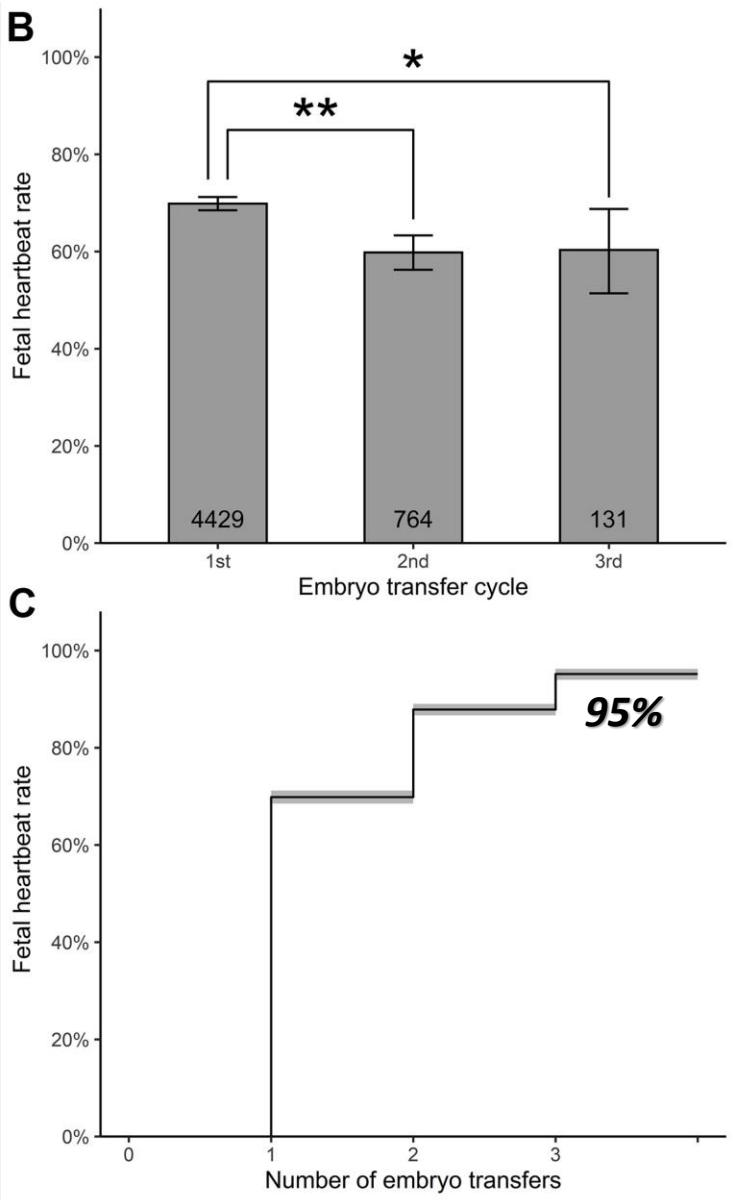

**Three consecutive frozen euploid single embryo transfers (FE-SETs)**

Fertility and Sterility® Vol. 115, No. 1, January 2021

FERTGROUP | FERTILITY




**Three consecutive frozen euploid single embryo transfers (FE-SETs)**




Fertility and Sterility® Vol. 115, No. 1, January 2021

FERTGROUP | FERTILITY

ORIGINAL ARTICLES: ASSISTED REPRODUCTION

Check for updates

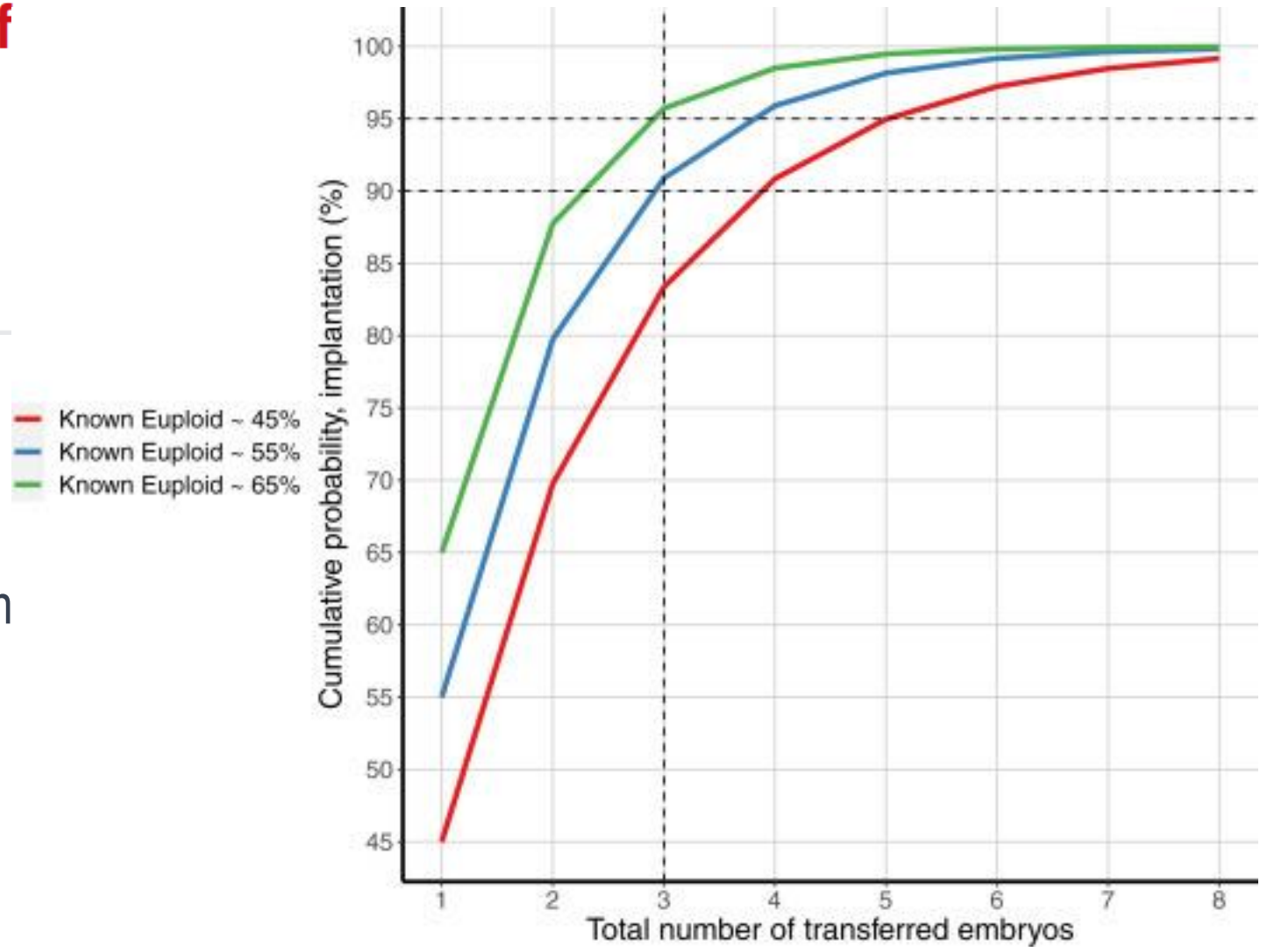
# A new definition of recurrent implantation failure on the basis of anticipated blastocyst aneuploidy rates across female age

Baris Ata, M.D., M.Sc.,[a] Erkan Kalafat, M.D., M.Sc.,[a,b] and Edgardo Somigliana, M.D., Ph.D.[c,d]

[a] Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Koc University School of Medicine, Istanbul, Turkey; [b] Department of Statistics, Faculty of Arts and Sciences, Middle East Technical University, Ankara, Turkey; [c] Infertility Unit, Fondazione Istituto di Ricerca e Cura a Carattere Scientifico Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; [d] Università degli Studi di Milano, Milan, Italy

Fertility and Sterility® Vol. 116, No. 5, November 2021 0015-0282

https://doi.org/10.1016/j.fertnstert.2021.06.045




Transferência de 3 embriões euplóides (em média) para probabilidade de 95% de implantação

FERTGROUP | FERTILITY

Estimation of the number of **unscreened** good quality embryos needed to be equivalent to 3 euploid ET

| Age | Observed aneuploidy rate | Number of untested blastocysts |
|---|---|---|
| < 35 | 20% | 4 |
| 35-37 | 30% | 5 |
| 38-40 | 50% | 7 |
| 41-42 | 70% | 13 |
| 43+ | 85% | 27 |

*Recurrent implantation failure. Fertil Steril 2023*

OXFORD human reproduction update

*Human Reproduction Update*, 2023, 1–64
https://doi.org/10.1093/humupd/dmad010

# Opening the black box: why do euploid blastocysts fail to implant? A systematic review and meta-analysis

Danilo Cimadomo [1,*], Laura Rienzi[1,2], Alessandro Conforti [3], Eric Forman[4], Stefano Canosa[5], Federica Innocenti[1], Maurizio Poli[6,7], Jenna Hynes[4], Laura Gemmell[4], Alberto Vaiarelli [1], Carlo Alviggi[8], Filippo Maria Ubaldi[1], and Antonio Capalbo [7,*]

| Study or Subgroup | Poor quality Events | Total | High quality Events | Total | Weight | Odds Ratio M-H, Random, 95% CI |
|---|---|---|---|---|---|---|
| Capalbo et al. 2014 | 7 | 13 | 99 | 202 | 9.1% | 1.21 [0.39, 3.74] |
| Cimadomo et al. 2018 (a) | 5 | 68 | 385 | 894 | 10.7% | 0.10 [0.04, 0.26] |
| Irani et al. 2018 (b) | 33 | 112 | 336 | 589 | 14.6% | 0.31 [0.20, 0.49] |
| Cimadomo et al. 2019 (b) | 21 | 193 | 757 | 1690 | 14.5% | 0.15 [0.09, 0.24] |
| Viñals Gonzalez et al. 2019 | 6 | 10 | 115 | 169 | 7.9% | 0.70 [0.19, 2.60] |
| Ji et al. 2020 | 58 | 145 | 111 | 215 | 14.7% | 0.62 [0.41, 0.96] |
| Chen et al. 2021 | 44 | 112 | 193 | 357 | 14.7% | 0.55 [0.36, 0.85] |
| Wang et al. 2021 | 30 | 69 | 146 | 268 | 13.9% | 0.64 [0.38, 1.10] |
| **Total (95% CI)** | | **722** | | **4384** | **100.0%** | **0.40 [0.24, 0.67]** |
| Total events | 204 | | 2142 | | | |

Heterogeneity: Tau² = 0.41; Chi² = 41.68, df = 7 (P < 0.00001); I² = 83%
Test for overall effect: Z = 3.53 (P = 0.0004)

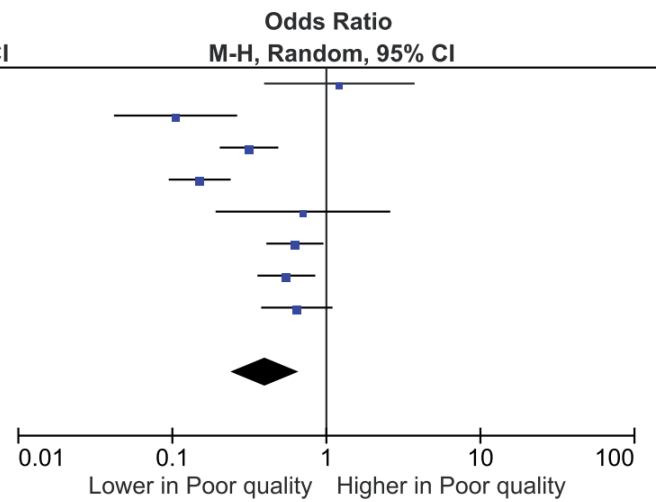



**Figure 4.** Poor-quality blastocysts (<BB) were associated with a lower live birth rate per euploid transfer than high-quality blastocysts.

# DADOS FERTILITY 2022: 1183 ciclos

| Variável | Média |
|---|---|
| Idade | 37,1 anos |
| Taxa de blastulação/ovócitos injetados | 2730/6197 (44,0%) |
| CICLOS DE PGT (480 ciclos) | |
| Variável | Média |
| Taxa de euploidia | 494/1383 (35,7%) |

# DADOS FERTILITY 2022: 1183 ciclos

1 blastocisto euploide

- 35,7% de taxa euploidia

2,8 blastocistos não testados

- 44,0% taxa blastulação dos ovócitos Injetados

6,4 oócitos MII

3 blastocisto euploides

3 x 6,4 = 19,2 MII

Chance 95% de implantação

FERTGROUP | FERTILITY

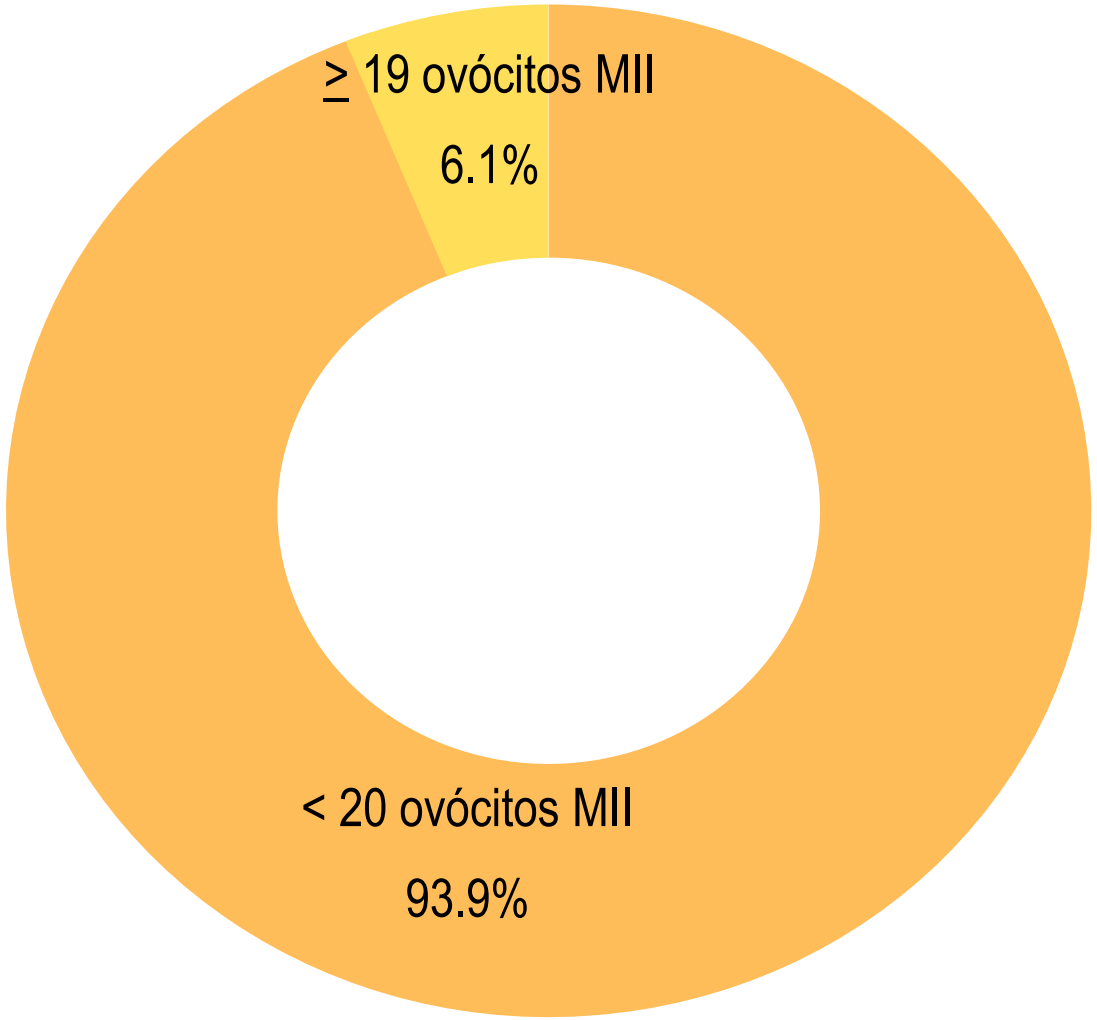
# DADOS FERTILITY

Congelamento social de ovócitos entre 2010 a 2023: 1332 ciclos de 1000 pacientes

Idade média 36,6

Número médio de ovótcios vitrificados: 6,4

81/1332 (6,1%) congelam > 19 MII

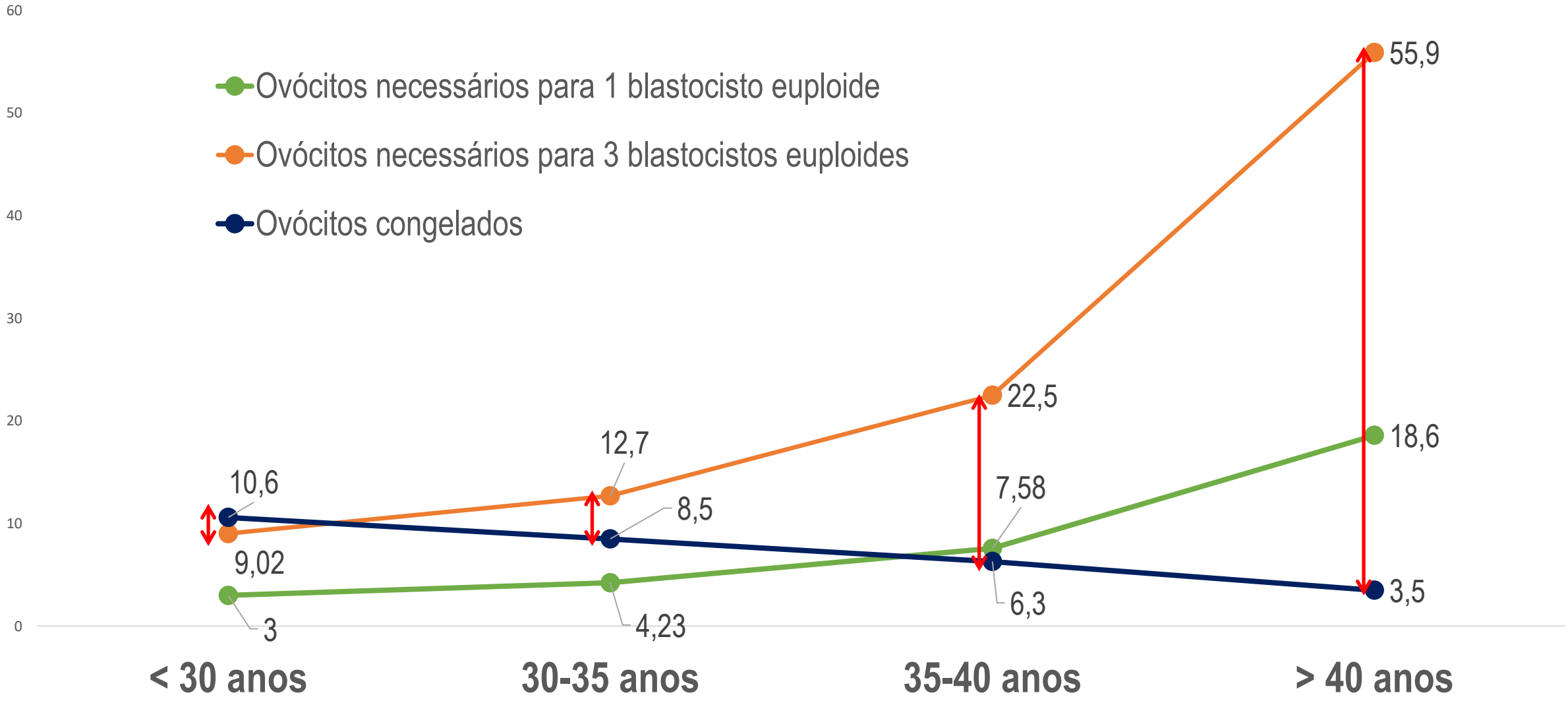


| DADOS FERTILITY 2022 | | | | |
|---|---|---|---|---|
| Idade | < 30 anos | 30-35 anos | 35-40 anos | > 40 anos |
| Taxa de blastulação/oócito injetado | 50,3 | 46,2 | 41,1 | 32,8 |
| Ovócitos necessários para 1 Blastocisto | 1,98 | 2,16 | 2,43 | 3,04 |
| Taxa de euploidia (%) | 65,7 | 51,0 | 32,3 | 16,3 |
| Blastocistos necessários para 1 blastocisto euploide | 1,52 | 1,96 | 3,09 | 6,13 |
| Ovócitos necessários para 1 blastocisto euploide | 3,00 | 4,23 | 7,52 | 18,6 |
| Ovócitos necessários para 3 blastocistos euploides | 9,02 | 12,7 | 22,5 | 55,9 |

| DADOS FERTILITY 2022 | | | | |
|---|---|---|---|---|
| Idade | < 30 anos | 30-35 anos | 35-40 anos | > 40 anos |
| Taxa de blastulação/oócito injetado | 50,3 | 46,2 | 41,1 | 32,8 |
| Ovócitos necessários para 1 Blastocisto | 1,98 | 2,16 | 2,43 | 3,04 |
| Taxa de euploidia (%) | 65,7 | 51,0 | 32,3 | 16,3 |
| Blastocistos necessários para 1 blastocisto euploide | 1,52 | 1,96 | 3,09 | 6,13 |
| Ovócitos necessários para 1 blastocisto euploide | 3,00 | 4,23 | 7,52 | 18,6 |
| Ovócitos necessários para 3 blastocistos euploides | 9,02 | 12,7 | 22,5 | 55,9 |
| **CRIOPRESERVAÇÃO FERTILITY 2010-2023** | | | | |
| Criopreservação social (n) | 66 | 311 | 640 | 315 |
| Número médio de ovócitos congelados | 10,6 | 8,5 | 6,3 | 3,5 |
| Pacientes que recuperaram nível adequado de ovócito (n) | 32 | 81 | 14 | 0 |
| Taxa de pacientes com recuperação adequada de ovócitos (%) | 48,4 | 26,0 | 2,18 | 0 |

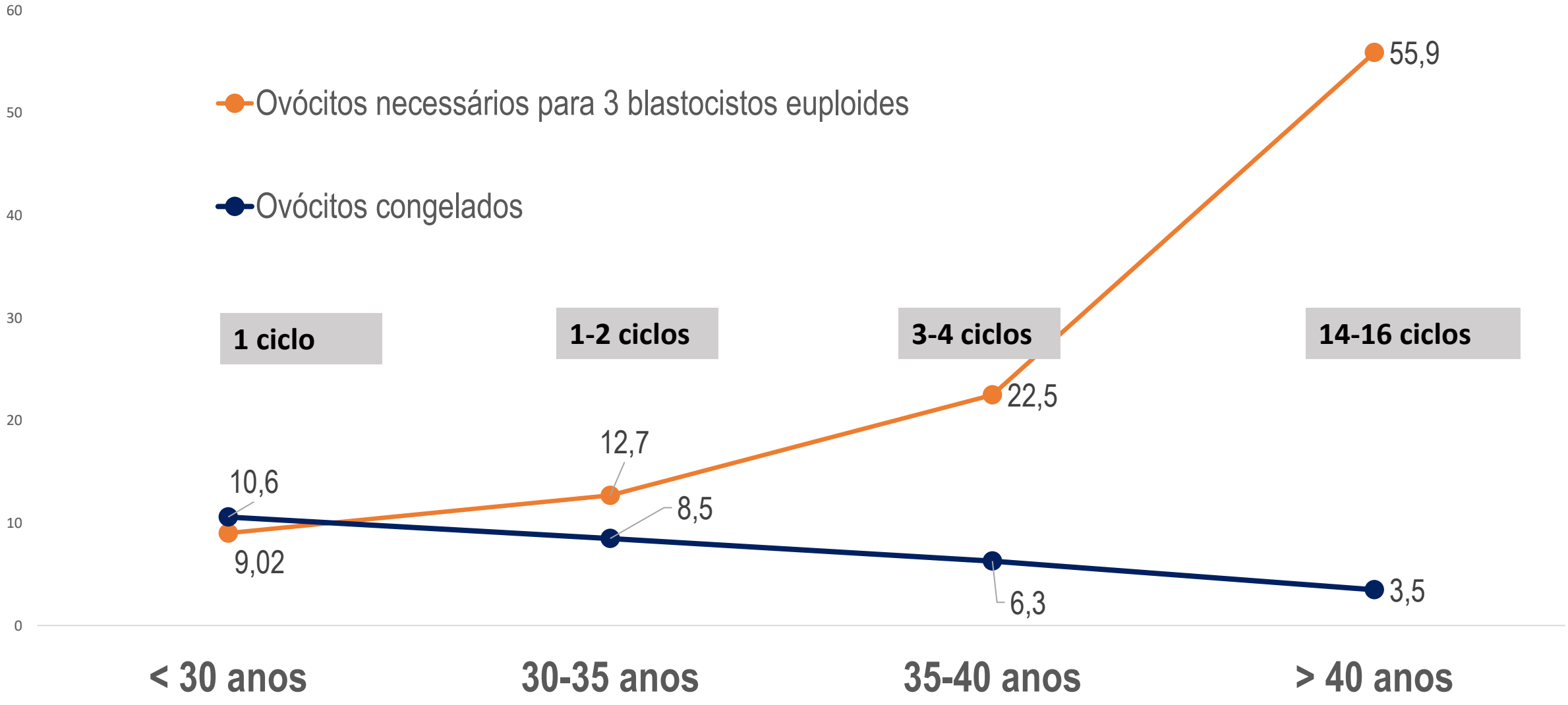
| DADOS FERTILITY 2022 | | | | |
|---|---|---|---|---|
| Idade | < 30 anos | 30-35 anos | 35-40 anos | > 40 anos |
| Taxa de blastulação/oócito injetado | 50,3 | 46,2 | 41,1 | 32,8 |
| Ovócitos necessários para 1 Blastocisto | 1,98 | 2,16 | 2,43 | 3,04 |
| Taxa de euploidia (%) | 65,7 | 51,0 | 32,3 | 16,3 |
| Blastocistos necessários para 1 blastocisto euploide | 1,52 | 1,96 | 3,09 | 6,13 |
| Ovócitos necessários para 1 blastocisto euploide | 3,00 | 4,23 | 7,52 | 18,6 |
| Ovócitos necessários para 3 blastocistos euploides | 9,02 | 12,7 | 22,5 | 55,9 |
| **CRIOPRESERVAÇÃO FERTILITY 2010-2023** | | | | |
| Criopreservação social (n) | 66 | 311 | 640 | 315 |
| Número médio de ovócitos congelados | 10,6 | 8,5 | 6,3 | 3,5 |
| Pacientes que recuperaram nível adequado de ovócito (n) | 32 | 81 | 14 | 0 |
| Taxa de pacientes com recuperação adequada de ovócitos (%) | **48,4** | **26,0** | **2,18** | **0** |

# OVÓCITOS NECESSÁRIOS vs OVÓCITOS VITRIFICADOS (DADOS FERTILITY)




FERTGROUP | FERTILITY

# OVÓCITOS NECESSÁRIOS vs OVÓCITOS VITRIFICADOS (DADOS FERTILITY)




FERTGROUP | FERTILITY

### *Direção*
Assumpto Iaconelli Jr.
Edson Borges Jr.

### *Laboratório de FIV*
Beatriz Muller
Livia Silvia Vingris
Lyvia E. Busso
Patrícia Guilherme
Rodrigo Rosa Provenza
Tatiana Nunes de Melo

### *Laboratório de Andrologia*
Rodrigo Rosa Provenza
Debora Hernandez

### *Pesquisa e Educação*
### *Instituto Sapientiae*
Amanda Setti
Christina Morishima
Daniela Braga
Maite del Collado
Raphaella Figueiredo

### *Corpo Clínico*
Carla Iaconelli
Carolina Rossoni
Edward Carrilho
Fernanda Montenegro
Fábio Biaggioni Lopes
Mário Firmino
Mauro Bibancos
Natalia G. Tannous
Natália Martelli

### *Pisicologia*
Rose M. Melamed

### *Anestesiologia*
Marcelo Torres
e Equipe

### *Nutrição*
Gabriela Halpern

FERTGROUP | FERTILITY

### *Enfermagem*
Alcione Bispo
Gabriela Lima Almeida
Larissa Rodrigues Gonçalves
Letícia Firmino
Maria Regina S. da Silva
Patrícia Castro
Vera Lucia Alves

### *Informática*
Anderson Veloso
Marcelo Alexandre Baptista

### *Farmácia*
Maria das N. Fernandes

### *Suporte*
Genilson Souza
Hugo Oliveira dos Reis
Janaína Gomes Pinho da Silva
Jicélia Santos
João Lucas Ramos
Joice Procópio
José Roberto Duarte
Leidivânia Cerqueira Alves
Marcela Rosa Anjos
Sérgio Luis da Silva
Simone de S. Carvalho
Zenilda da Conceição Souza

### *Comunicação e Marketing*
Larissa Nishiwaki
Lígia Porfirio

### *Administração*
Ana Carolina Santos
Josué B. Santos
Katia  Rodrigues
Lucácio de S. Anjos
Margaret Meira


FERTGROUP | FERTILITY

# Obrigado!

Dr. Edson Borges Jr.
www.fertility.com.br
E-mail: edson@fertility.com.br
Instagram: @dr_edson_borges_jr

FERTILITY
MEDICAL GROUP

FERTGRO