

YARDIMLA ÜREME TEKNİKLERİNDE BAŞARIYI ETKİLEYEN FAKTÖRLER

ALİ SAMİ GÜRBÜZ

KONYA EUROFERTİL TÜPBEBEK MERKEZİ



YÜT' de başarıyı etkileyen basamaklar

- ❖ Anamnez, hikaye, değerlendirme Anne yaşı
- ❖ İnfertilite nedeni,süresi
- ❖ Siklus sayısı
- ❖ Sperm sayısı, morfolojisi, motilitesi
- ❖ Stimulasyon
 - ❖ IUI veya Oosit aspirasyonu
 - ❖ Stimülasyon sonucu elde edilen oosit sayı ve kalitesi (response)
 - ❖ IVF veya ICSI uygulamaları
- ❖ Embriyo gelişimi
 - ❖ Transfer
 - ❖ Transfer edilen embriyo sayısı
 - ❖ Transfer edilen embriyoların kalitesi
 - ❖ Uterin kontraksiyonların varlığı
 - ❖ Transferde Doktor faktörü
 - ❖ Kateter seçimi
- ❖ Ultrason kılavuzluğunda transfer?
- ❖ Zor transfer! ET sırasındaki girişim adedi,transfer kateterinde kan veya mukus varlığı
 - ❖ Klinik gebelik
 - ❖ Canlı doğum



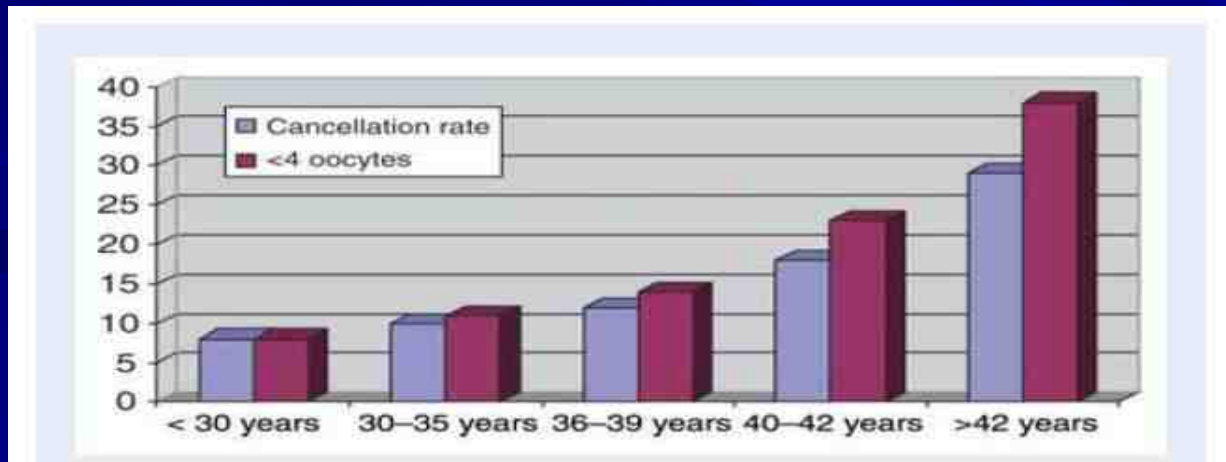
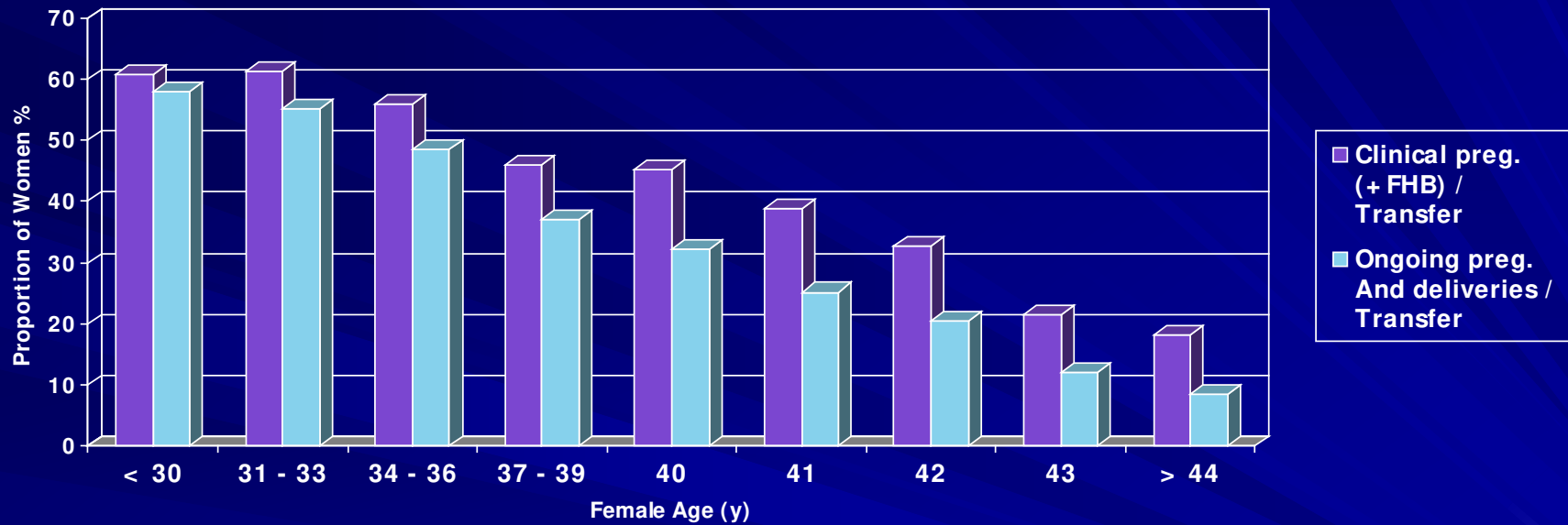
YAŞ KOH +IUI İLİŞKİSİ

Yaş > 40 siklus başına doğum oranı %1.4-5.2

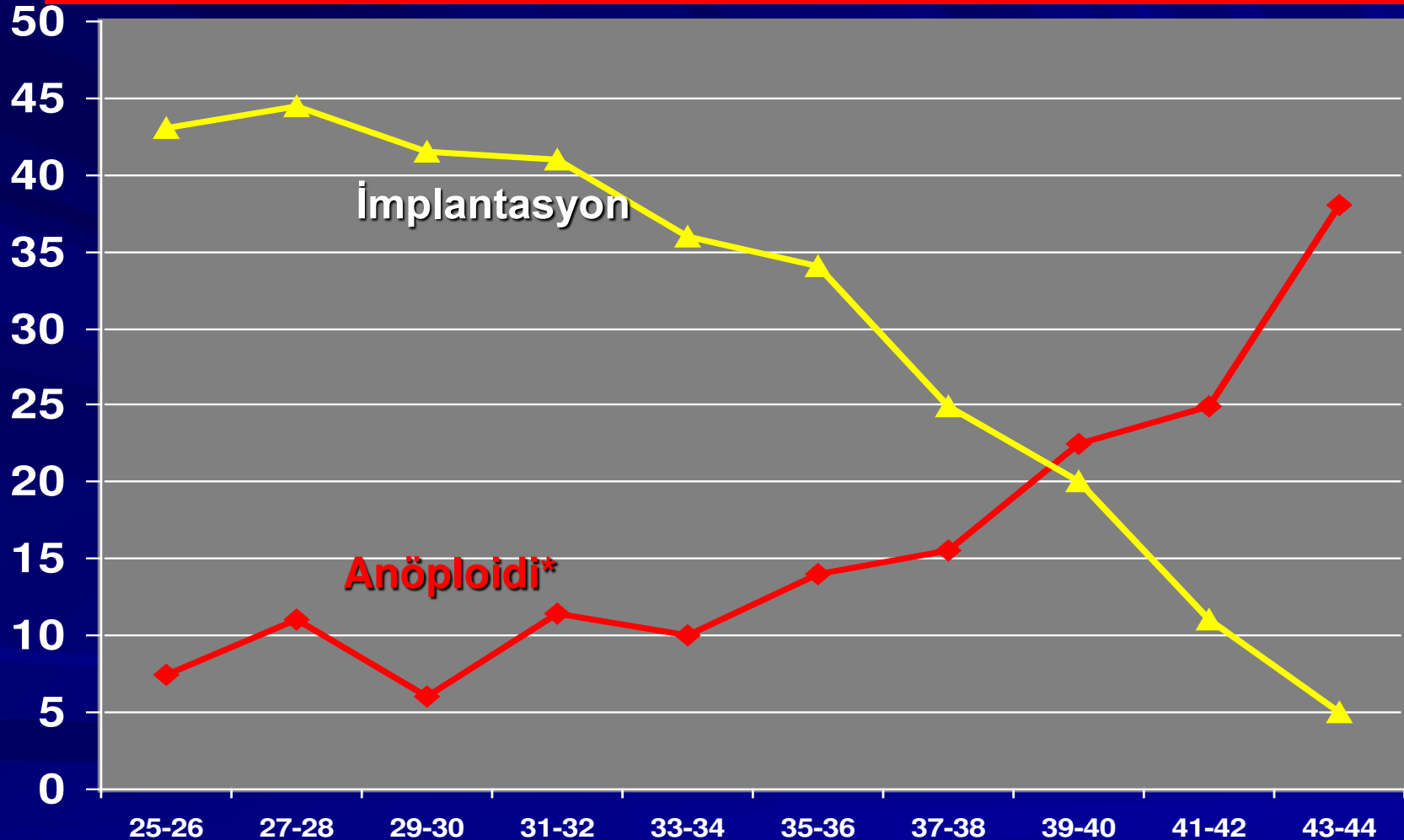
Yaş 35 - 40 siklus başına doğum oranı %8-10

Yaş <35 siklus başına doğum oranı %17-22

Yaş



PGT Bulguları - Yaş



*XY, 13, 15, 16, 18, 21, 22 kr. için anöplöidi olguları (Munne et al, 2003)

❖ **ŞİŞMAN** kadınlarda gerek spontan, gerekse invitro fertilizasyon programlarında gebelik oranları azalmaktadır.

❖ BMI >30 ise kilo verdirici programlar önerilmelidir.

❖ **SİĞARA** içimi ovaryan rezervi ve ovaryan stimülasyona cevabı azaltmaktadır. El Nemr et al. 1998

❖ Erkeklerde sperm konsantrasyonu % 17 azalmaktadır, ayrıca kaliteside düşmektedir. Vine MF et al. 1999

❖ Kafein tüketimi (2–50 mg/gün vs 0–2 mg/gün; 100 mg kafein, bir bardak kahve hayat boyu) IVF ile canlı çocuk doğurma oranlarını olumsuz etkilemektedir

Effects of cigarette smoking upon clinical outcomes of assisted reproduction: a meta-analysis

A.L. Waylen^{1,6}, M. Metwally², G.L. Jones³, A.J. Wilkinson⁴,
 and W.L. Ledger⁵

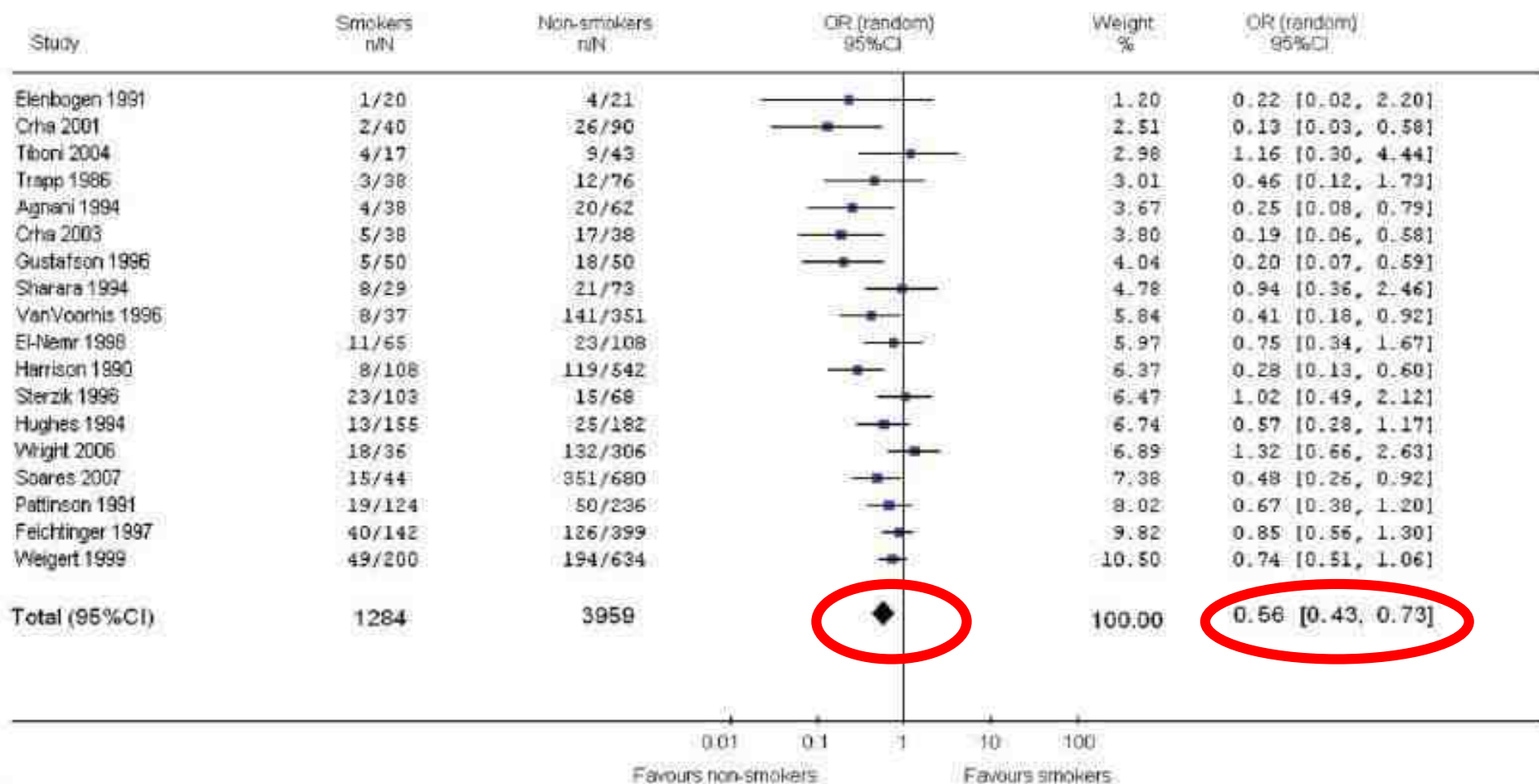
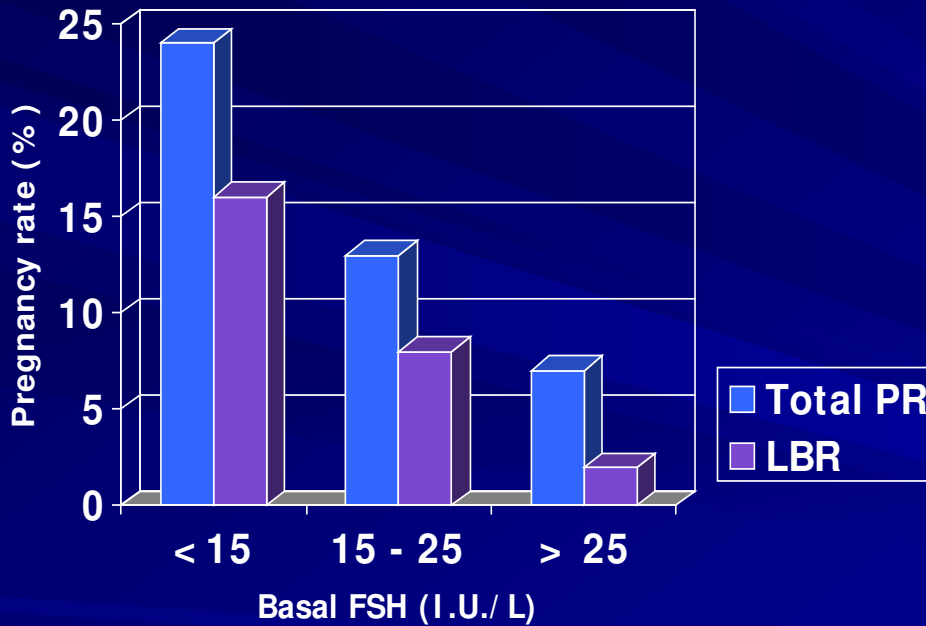


Figure 2 Odds ratio of clinical pregnancy rate per cycle.

3. Gün FSH



- ❖ IVF tedavisi alacak hastalarda yaş 3. gün FSH ölçümüne göre gebelik olasılığını daha iyi gösterir
- ❖ 35 yaşından küçük hastalarda FSH>10 mIU/mL ise azalmış folikül rezervini gösterir ancak kalite düşüklüğünü göstermez.

Chuang
et al 2003

Bazal E2

- ❖ 3. gün $E_2 > 45$ pg/ml ise kötü yanıt ve düşük gebelik oranları izlenir.
- ❖ 3. Gün FSH ölçümü ile daha değerli.

Grup	E2 (pg/mL)	FSH (mIU/mL)	n	Devam eden gebelik/oosit retrieval (%)
1	≤ 45	≤ 17	224	51(22.8)
2	> 45	≤ 17	149	26(17.4)
3	≤ 45	> 17	48	8(16.7)
4	> 45	> 17	31	0(0)

STİMÜLASYON ŞEKLİ

- ❖ IVF sırasında yüksek doz gonadotropin alan oositlerde artmış morfolojik ve kromozomal anormalite izlenir.

Eppig et al., 1998

van Blerkom and Davis et al. 2001

Roberts et al.2005

Baart, Human Reprod 2007

- ❖ Mild stimülasyonlarda euploid embriyo oranı yüksek.
- ❖ Maksimal stimülasyonda oosit ve embriyo kalitesi düşük.

Baart et al., 2007

The clinical significance of the retrieval of a low number of oocytes following mild ovarian stimulation for IVF: a meta-analysis

M.F.G. Verberg^{1,4}, M.J.C. Eijkemans^{1,2}, N.S. Macklon¹,
E.M.E.W. Heijnen¹, E.B. Baart¹, F.P. Hohmann³, B.C.J.M. Fauser¹,
and F.J. Broekmans¹

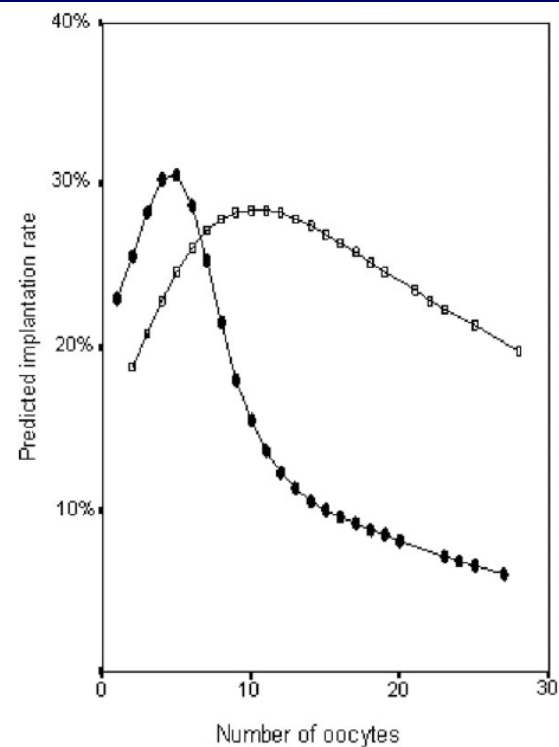


Table III Ongoing pregnancy rate per embryo transferred as a function of the number of retrieved oocytes following mild or conventional ovarian stimulation for IVF

Number of retrieved oocytes	Conventional stimulation			Mild stimulation		
	Implantation failure		Ongoing pregnancy/ embryo transferred	Implantation failure		Ongoing pregnancy/ embryo transferred
	n			n		
1–3	21		4	38		15
4–6	64		21	46		19
7–9	69		26	43		10
10–12	58		27	22		3
13–15	41		12	14		3
16–18	20		10	9		2
19–21	11		0	4		0
22–24	1		3	4		0
25–27	2		0	5		0
28–30	1		0	0		0
Total	288		103	185		52

(rFSH vs HMG/HP-HMG)

	rFSH	U gonadotropin
LBR	%22-26	%25
OHSS	%1,7-3,2	%2

OR 0.97, 95% CI 0.87 to 1.08

OR 1.18, 95% CI 0.86 to 1.6

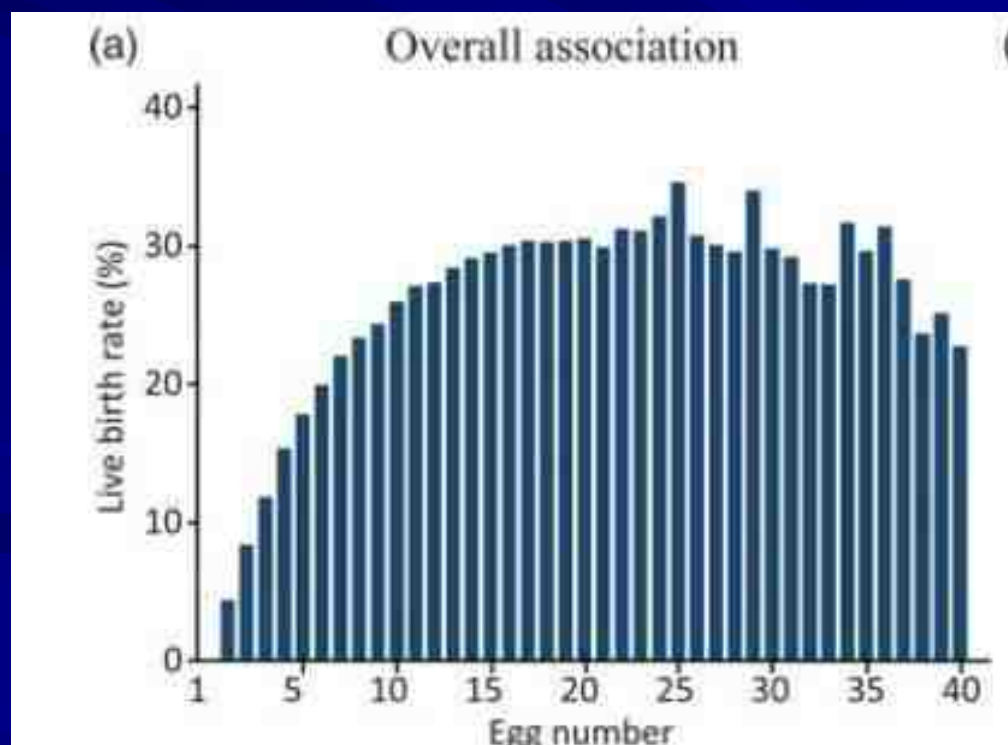
Aspire edilen oosit sayısı

AOS	<5	>5
	Kümülatif gebelik oranı % (Kümülatif canlı doğum oranı %)	
1.siklus	13 (9)	37 (30)
2.siklus	24 (20)	60 (52)
3.siklus	40 (32)	71 (61)
4.siklus	64 (59)	77 (68)

Sharma et al. 2002

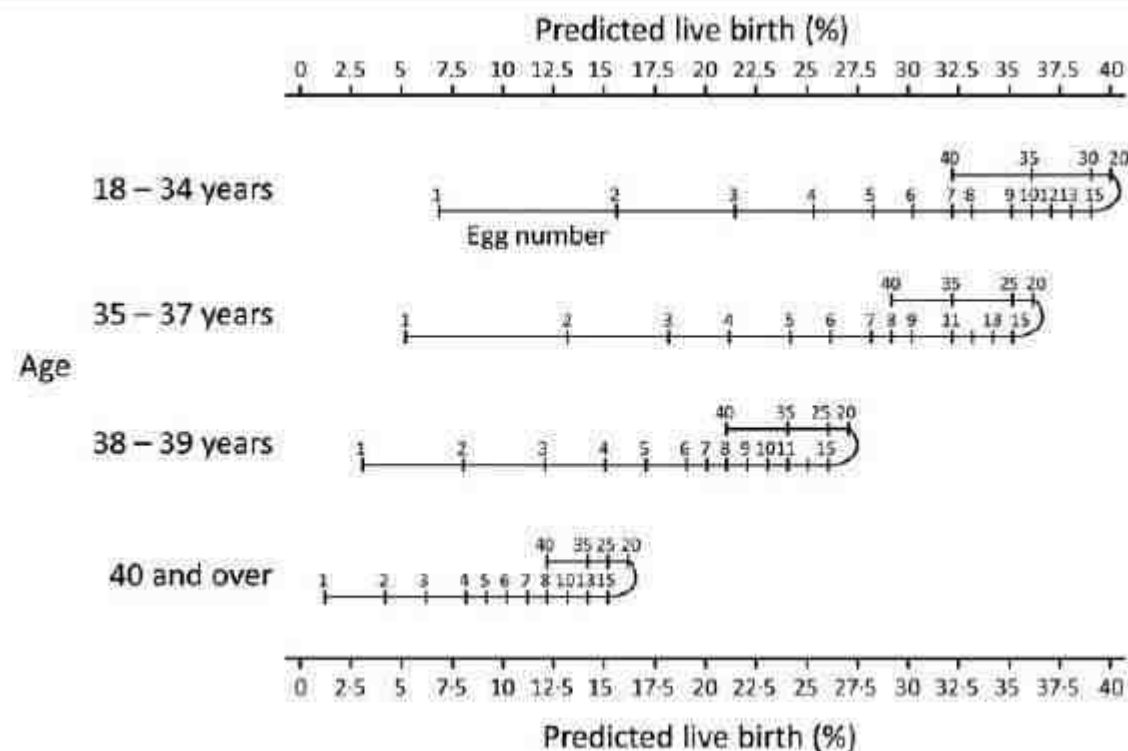
Association between the number of eggs and live birth in IVF treatment: an analysis of 400 135 treatment cycles

Sesh Kamal Sunkara¹, Vivian Rittenberg¹, Nick Raine-Fenning²,
Siladitya Bhattacharya³, Javier Zamora⁴, and Arri Coomarasamy^{5,*}



Association between the number of eggs and live birth in IVF treatment: an analysis of 400 135 treatment cycles

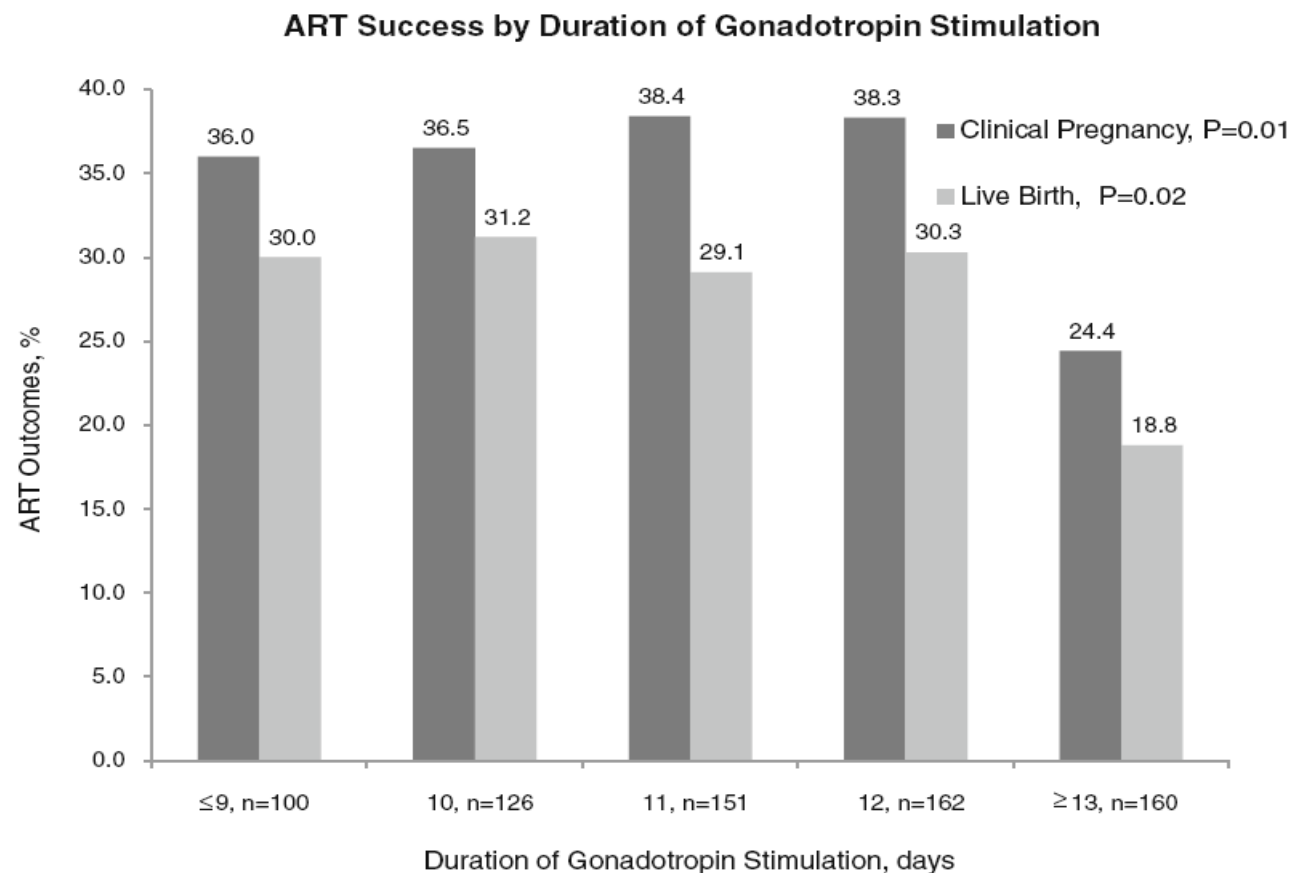
Sesh Kamal Sunkara¹, Vivian Rittenberg¹, Nick Raine-Fenning²,
 Siladitya Bhattacharya³, Javier Zamora⁴, and Arri Coomarasamy^{5,*}



Prolonged gonadotropin stimulation is associated with decreased ART success

Meleen Chuang • Athena Zapantis • Martina Taylor •
Sangita K. Jindal • Genevieve S. Neal-Perry •
Harry J. Lieman • Alex Joel Polotsky

Fig. 1 ART success by duration of gonadotropin stimulation

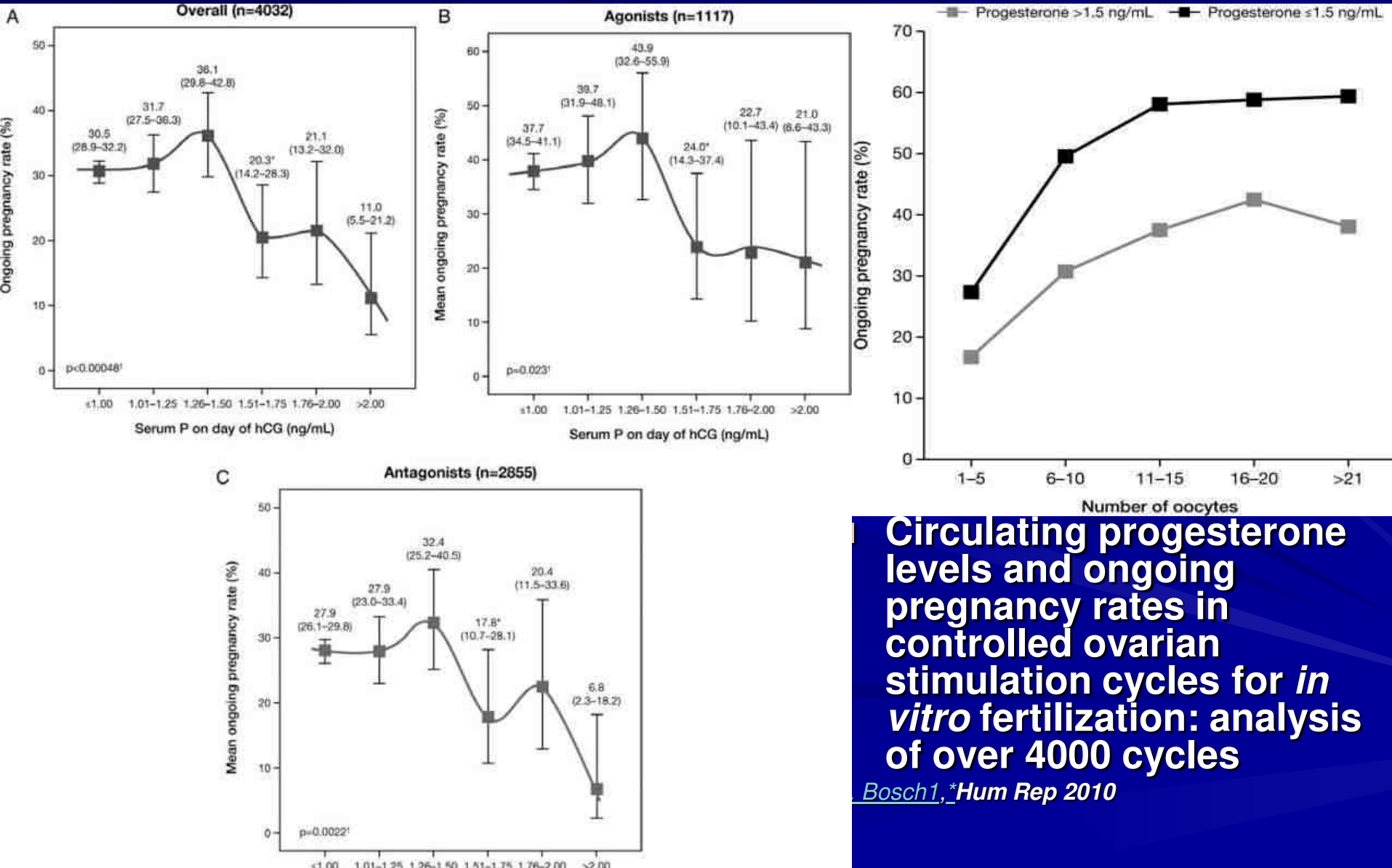


HCG günü Estradiol Düzeyi

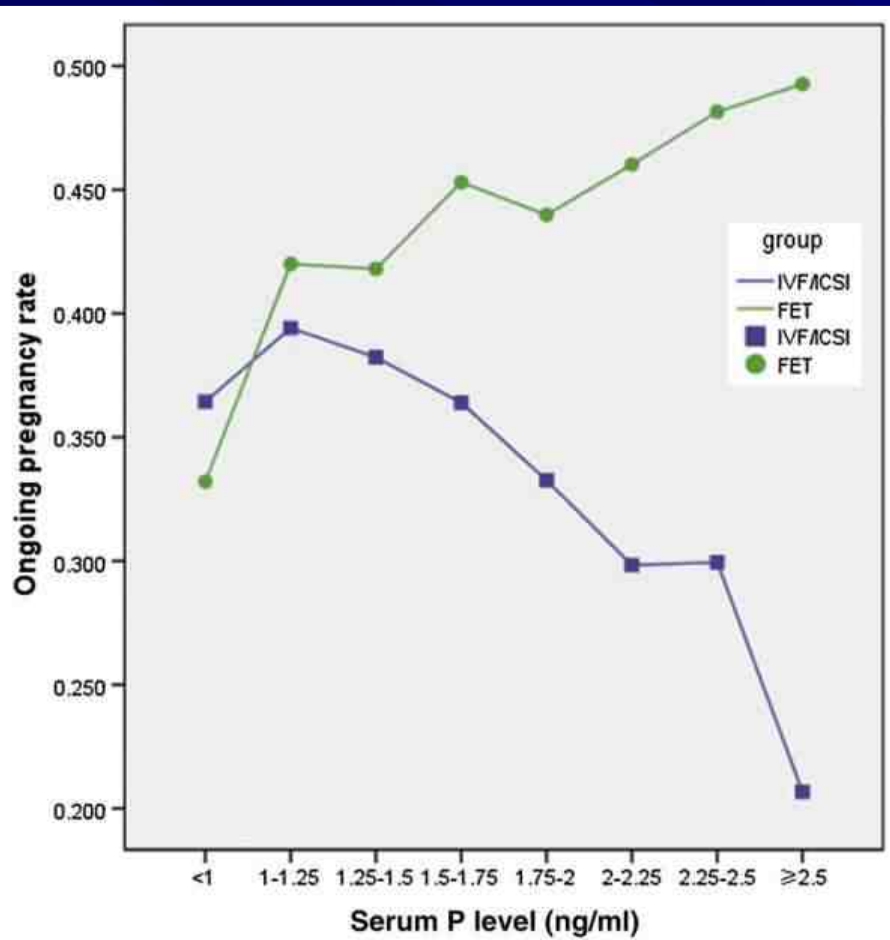
Yüksek estradiol seviyeleri implantasyon potansiyelini ve kromozomal durumu olumsuz etkilemektedir.

Katz-Jaffe *et al.*, 2005

HCG günü Progesteron Düzeyi



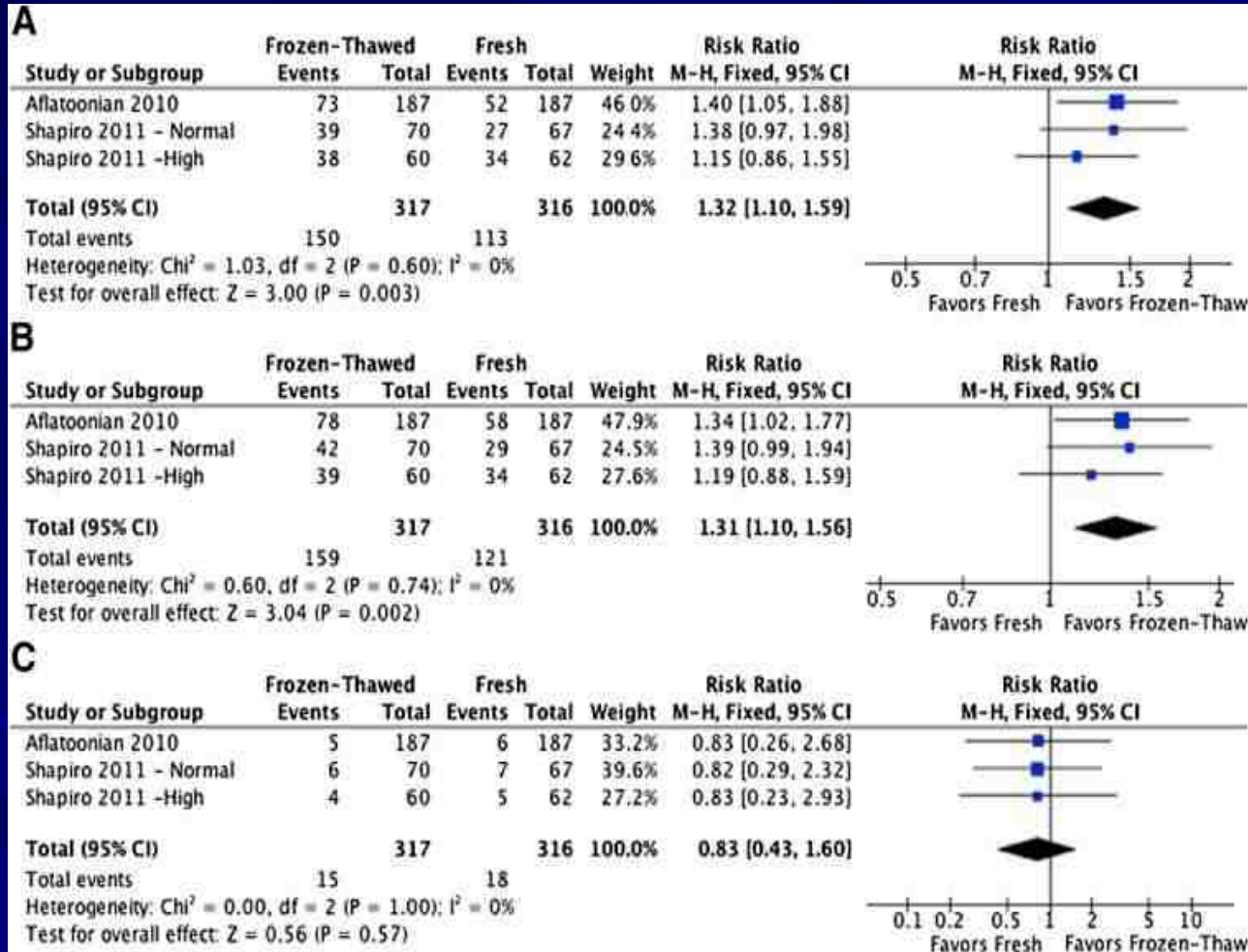
HCG günü Progesteron Düzeyi



- High responders için 2,25ng/ml
- Normoresponders için 1,75 ng/ml
- Poor responders için 1,5 ng/ml

Bei Xu Fertility Sterility 2012

Fresh vs Thaw ET



Ongoing PR

Clinical PR

Miscariage Rate

Oosit kalitesi

- ❖ Oosit kalitesinin blastomer klivaj oranından çok embriyo kalitesi üzerine etkisi vardır.
- ❖ Oosit gelişiminin son evresinde sitoplazmada yoğun sitoplazmik organel,protein ve RNA birikimi olmaktadır. Bu organel ve moleküller embriyonun erken gelişiminde ilk 2 günde esastır.

Barnes et al. 2000

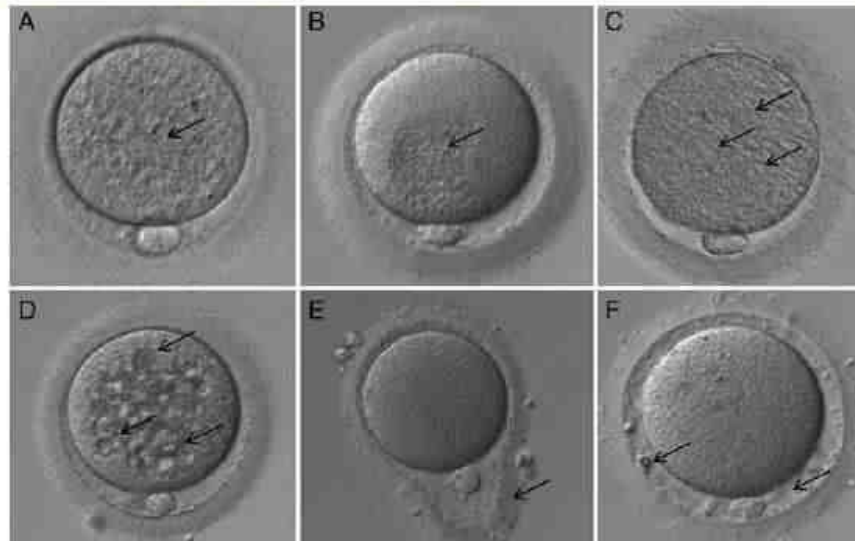


Figure 2 Different human oocyte morphological abnormalities (arrows) observed by light microscopy (400 × magnification): (A) diffuse cytoplasmic granularity, (B) centrally located cytoplasmic granular area, (C) smooth endoplasmic reticulum clusters, (D) vacuoles, (E) abnormal zona pellucida shape, (F) large perivitelline space with fragments.

Oosit kalitesi



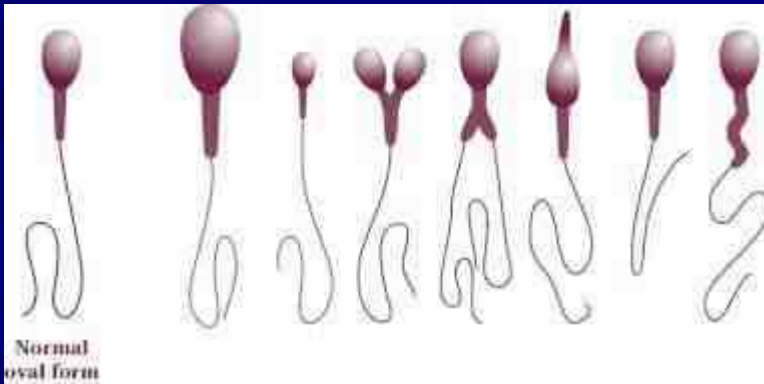
Sperm sayı ve kalitesi

- ❖ Sperm DNA yada kromatin defektlerinin azalmış blastomer oranına yol açtığı gösterilmiştir.

Tomlinson et al. 2001

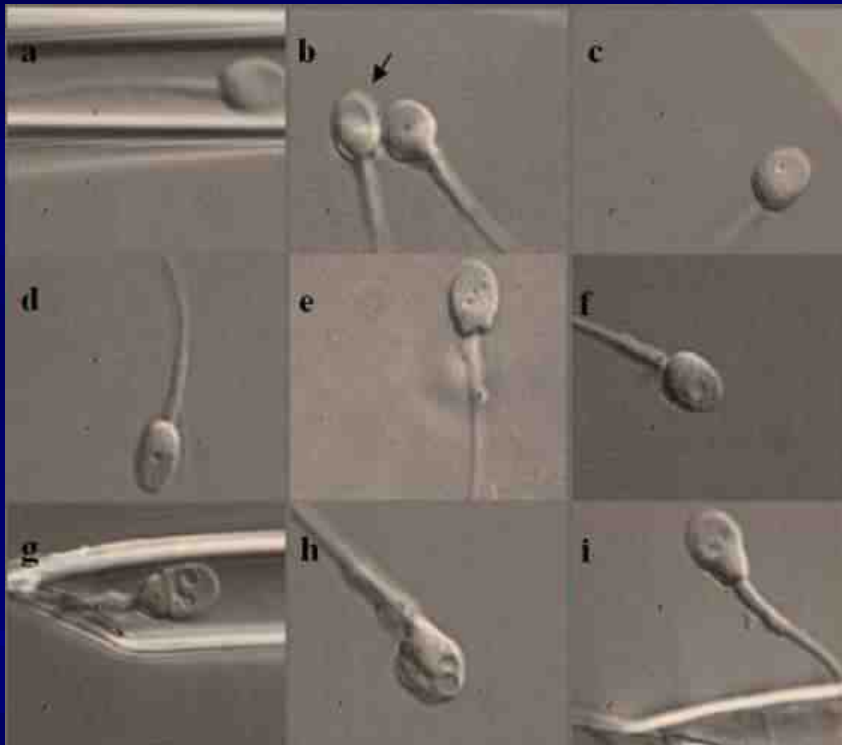
- ❖ Konvansiyonel IVF prosedürlerinde düşük sperm kalitesinin düşük blastosist formasyon oranı ve kötü blastosist morfolojisine yol açtığı gösterilmiştir.

Dumoulin et al. 2000



The IMSI procedure improves poor embryo development in the same infertile couples with poor semen quality: A comparative prospective randomized study

Katja Knez*, Branko Zorn, RBE 2011 9;123



■ Daha önceden ICSI geçirmiş FF veya kötü embriyo gelişimi gösteren grupta yeniden ICSI ve IMSI karşılaştırılmış

	IMSI	ICSI
PR	% 25	% 8,1

Intracytoplasmic sperm injection outcome versus intracytoplasmic morphologically selected sperm injection outcome: a meta-analysis

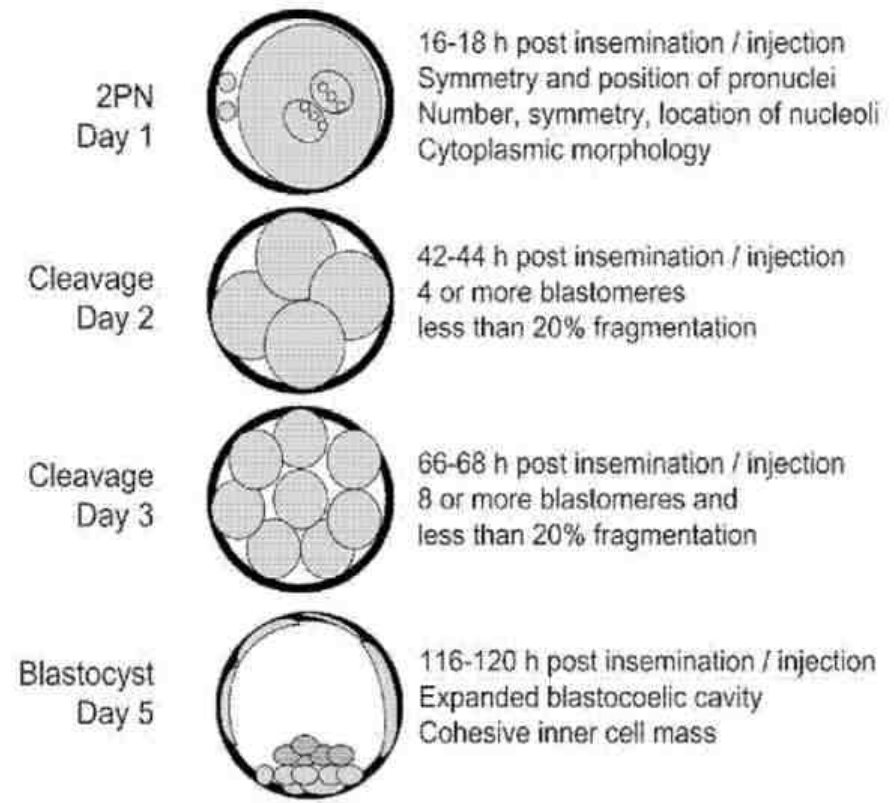
Amanda Souza Setti ^a, Renata Cristina Ferreira ^b,
Daniela Paes de Almeida Ferreira Braga ^{a,b}, Rita de Cássia Sávio Figueira ^{a,b},
Assumpto Iaconelli Jr ^b, Edson Borges Jr ^{a,b,*}

Abstract The development of a modified intracytoplasmic sperm injection (ICSI), called intracytoplasmic morphologically selected sperm injection (IMSI), demonstrated that a profound morphological investigation of the spermatozoon, under the magnification of 6600 $\times$, enables outcome improvement. The aim of this study was to compare ICSI outcome with IMSI outcome. The meta-analysis results demonstrated no significant difference in fertilization rate between ICSI and IMSI groups. However, a significantly improved implantation (odds ratio (OR) 2.72; 95% confidence interval (CI) 1.50–4.95) and pregnancy rate (OR 3.12; 95% CI 1.55–6.26) was observed in IMSI cycles. Moreover, the results showed a significantly decreased miscarriage rate (OR 0.42; 95% CI 0.23–0.78) in IMSI cycles as compared with ICSI cycles. This is the first meta-analysis of published data to evaluate the potential benefits of IMSI. The pooled data of IMSI cycles demonstrate a statistically significant improvement in implantation and pregnancy rates and a statistically significant reduction in miscarriage rates. However, more randomized controlled trials are needed to confirm these results. 

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EMBRIYO DEĞERLENDİRME PARAMETRELERİ

- ❖ Bölünme hızı
- ❖ Blastomer sayısı
- ❖ Blastomer simetri
- ❖ Sitoplazmik görünüm
- ❖ Fragmantasyon oranı
- ❖ Blastomerlerin nükleer durumu
(multinukleusluluk)



Embriyo gelişimi

- ❖ Çoğu çalışmaya göre Blastomer yarıklanma oranı potansiyel embriyo gelişimini belirleyen en önemli faktördür.
- ❖ 55. saat 8 hücreden fazla hücre içeren embriyoların implantasyon oranı daha az hücre içeren embriyolara göre daha yüksektir.



Edwards et al.1984

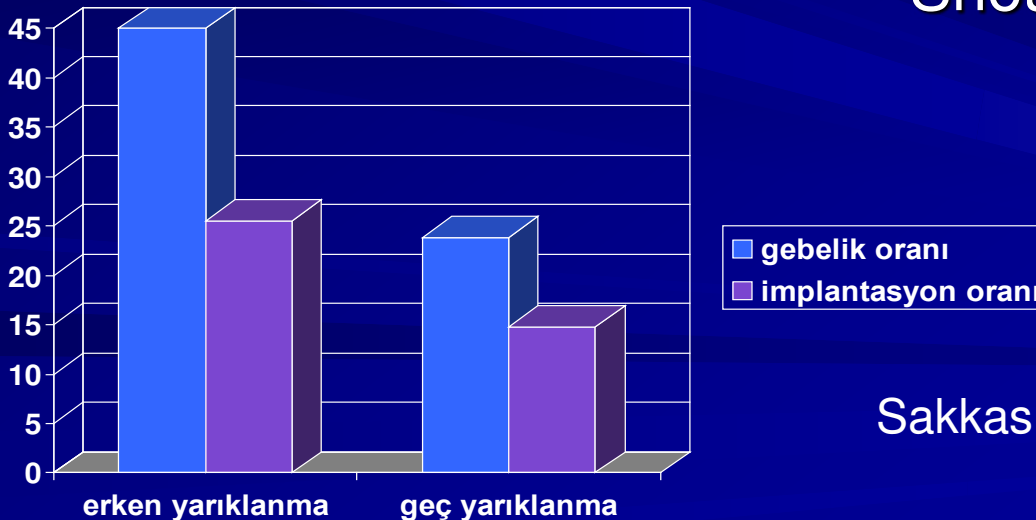
Embriyo gelişimi

- ❖ 4 hücre içeren embriyoların fragmantasyon göstergeleri bile fragmantasyon içermeyen 2 hücreli embriyolara göre tercih edilmeleri önerilir.

Ziebe et al. 1997

- ❖ 25. saatte 2 hücreye ulaşan embriyoların implantasyon potansiyelleri daha yüksektir.

Shoukiret al. 1997



Sakkas et al. 2001

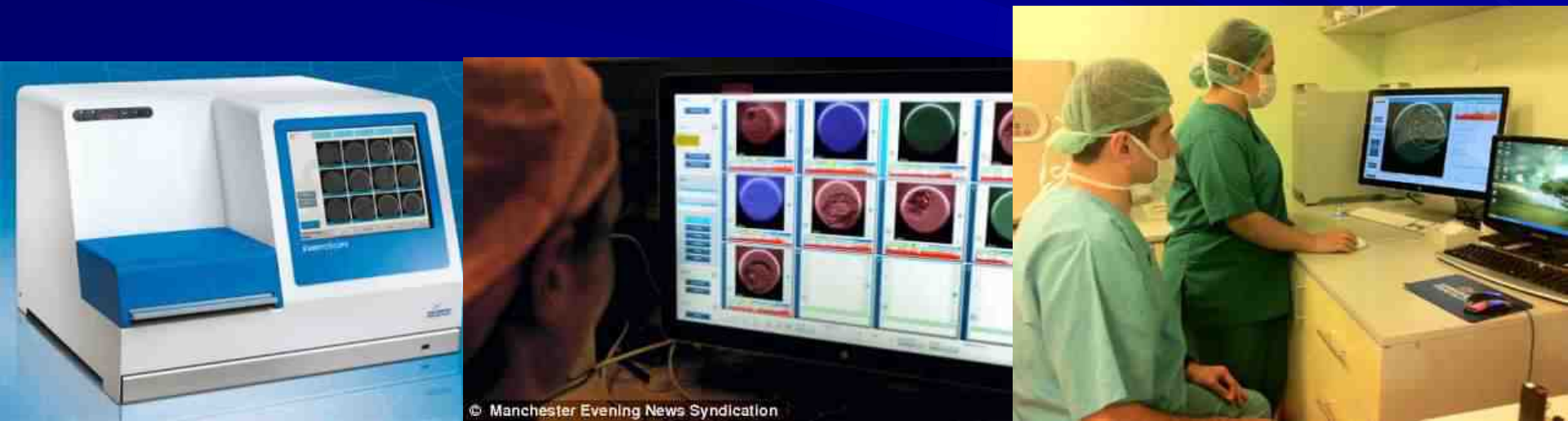
Hava Kalitesi ve IVF

- ❖ Anekdotal olarak 1994'te inşaat yapılan hastanedeki IVF bölümüne gebelik oranları %35'ten %16'ya inmiştir.
- ❖ Fertilizasyon oranları ve hücre evre gelişmesi oosit ve embryoların yüksek kaliteli hava ile maruziyetinde artar.
- ❖ Artırılmış hava kalitesi klinik gebelik oranlarını artırmaktadır.

Embryo incubation and selection in a time-lapse monitoring system improves pregnancy outcome compared with a standard incubator: a retrospective cohort study

Marcos Meseguer, Ph.D., a Irene Rubio, Ph.D., a Maria Cruz, 2012 sept Article in press

Evaluated comprising data from 7,305 IVF treatments from ten clinics (1,390 TMS cycles and 5,915 SI cycles). However, collecting retrospectivedata from ten different clinics resulted in a heterogeneous dataset requiring complex statistical analyses, evenwith the clinics being part of a chain that uses very similarprocedures. Aa comprehensive analysis of possible confoundingfactors was performed, and all significant confounding factors were included in a logistic regression model. The results indicate that the use of TMS instead of SI can improve the clinical pregnancy rate by an **estimated relative 20% (OR 1.201; P¼.0043)**. Additional advantages of the use ofTMS include less handling of embryos and their dishes for intermediate observations, which would reduce the risk of loss or contamination within the laboratory.



Transfer edilen embriyo sayısı

TES	≤ 2	> 2
	Kümülatif gebelik oranı % (Kümülatif canlı doğum oranı %)	
1.siklus	20 (16)	43 (35)
2.siklus	36 (31)	65 (56)
3.siklus	42 (36)	77 (67)
4.siklus	52 (48)	89 (71)

Transfer edilen embriyo sayısı

Reproductive Biology and Endocrinology

Review

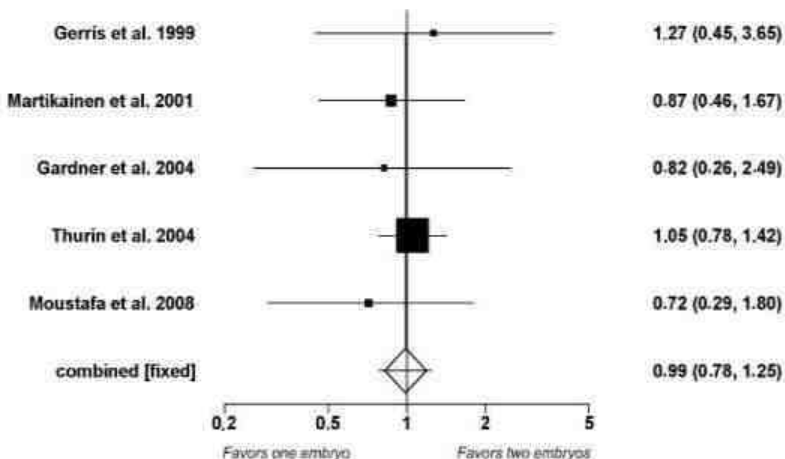
Single-embryo transfer reduces clinical pregnancy rates and live births in fresh IVF and Intracytoplasmic Sperm Injection (ICSI) cycles: a meta-analysis

Ricardo LR Baruffi¹, Ana L Mauri¹, Claudia G Petersen¹, Andréia Nicoletti¹, Anagloria Pontes², João Batista A Oliveira^{1,2} and José G Franco Jr^{*1,2}

Open

Implantation rate

Odds ratio meta-analysis plot [fixed effects] odds ratio (95% confidence interval)

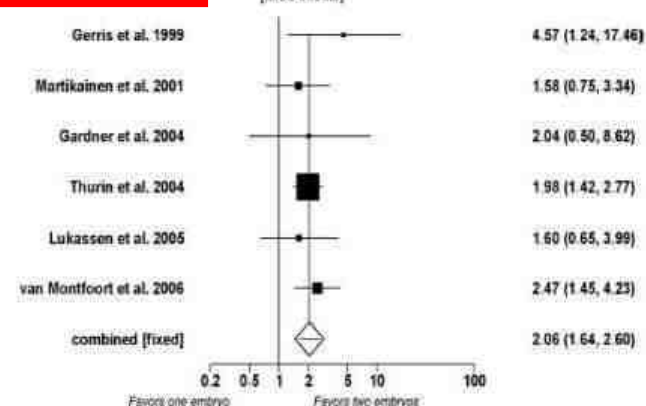


Fixed effects: Chi2 (test odds ratio differs from 1) = 0.001 $P=0.96$
 Non-combinability of studies: Breslow-Day= 1.3 (df=4) $P=0.85$; -Cochran Q= 1.3 (df=4) $P=0.85$
 -I2 (inconsistency)= 0% (95% CI=0% to 64.1%)

Figure 2
 Fixed-effect model. Implantation rates after single- and double-embryo transfer.

Ongoing pregnancy rate

Odds ratio meta-analysis plot [fixed effects] odds ratio (95% confidence interval)



Fixed effects: Chi2 (test odds ratio differs from 1) = 37.2 $P<0.0001$
 Non-combinability of studies: Breslow-Day= 3.3 (df=5) $P=0.65$; -Cochran Q= 3.3 (df=5) $P=0.65$
 -I2 (inconsistency)= 0% (95% CI=0% to 61%)

Figure 3
 Fixed-effect model. Ongoing clinical pregnancy rates after single- and double-embryo transfer.

Erken veya geç transfer

- ❖ Gelişen kültür ortamları sayesinde embryoları dış ortamda daha uzun süre geliştirmek mümkün olmuştur.
- ❖ Embriyoların seçimi sadece morfolojik kriterlere göre değil aynı zamanda yaşayabilirliklerine de bağlıdır.
- ❖ 5. gün transferlerinde, her embriyo başına daha yüksek implantasyon ve gebelik oranları bildirilmiştir.
- ❖ Blastosist transferi ile çok sayıda embriyo transferi gerekliliği azalır. Çoğul gebelik insidansı azalır.

Erken ve geç embriyo transferi

	2. gün	5.gün
Transfer edilen embryo %	%98,5	%56.8
Hasta başına transfer edilen embriyo sayısı	1.5±0.6	0.8 ±0.8
İmplantasyon oranı	17.9	17.6
Yerleştirilen embriyo başına implantasyon oranı	%17.8	%34.3
Gebelik oranı	%22.6	%21.2
Transfer edilen embriyo başına gebelik oranı	%22.9	%37.3

Erken ve geç embriyo transferi

- ❖ 5. gün transferinin gebelik ve implantasyon oranlarını iyileştirmede aksine olumsuz etkilediğini ileri süren çalışmalarda mevcuttur.
- ❖ 3. gün 8 hücreli embriyo yok ise veya hepsinin morfolojileri bozuk ise böyle embriyolar uterusu transfer edilerek kurtarılabilir.

Coskun et al. 2000
Racowsky et al. 2000

Live birth rates after transfer of equal number of blastocysts or cleavage-stage embryos in IVF. A systematic review and meta-analysis

Evangelos G. Papanikolaou¹, Efstratios M. Kolibianakis, Herman Tournaye, Christos A. Venetis, Human Fatemi, Basil Tarlatzis and Paul Devroey

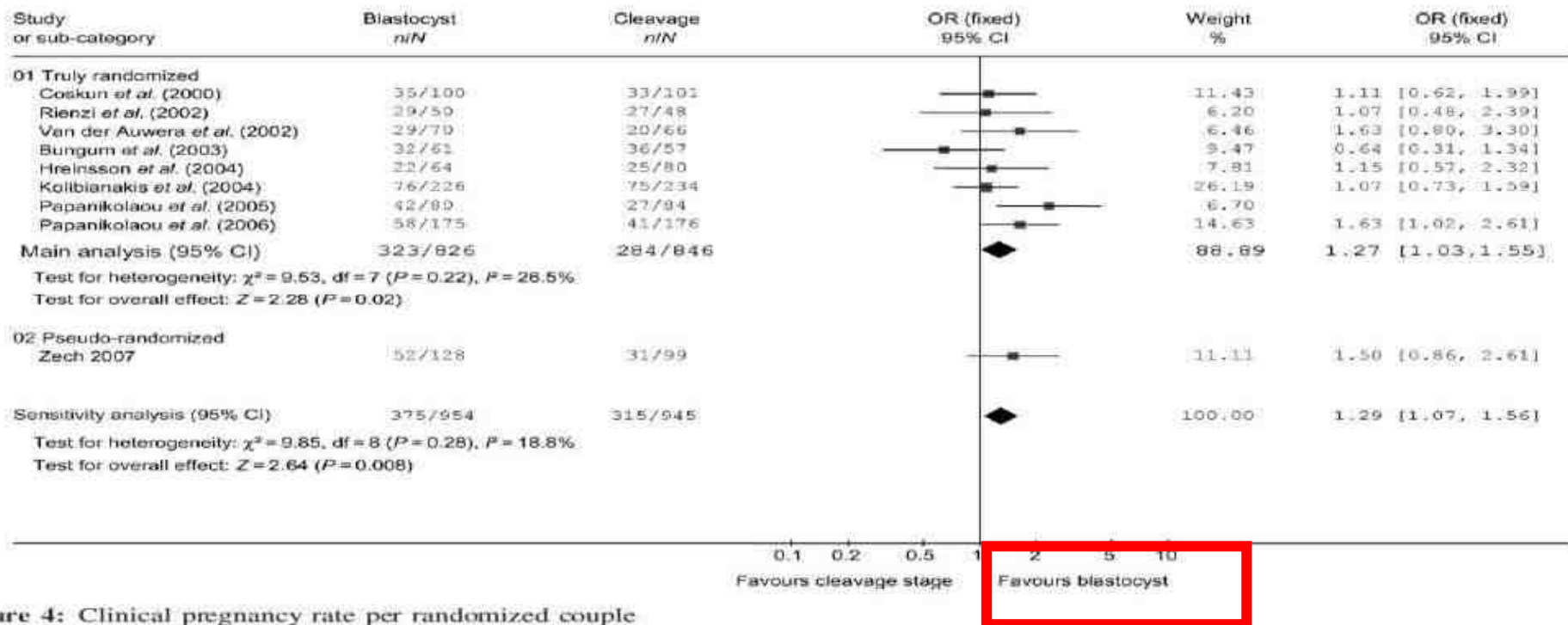


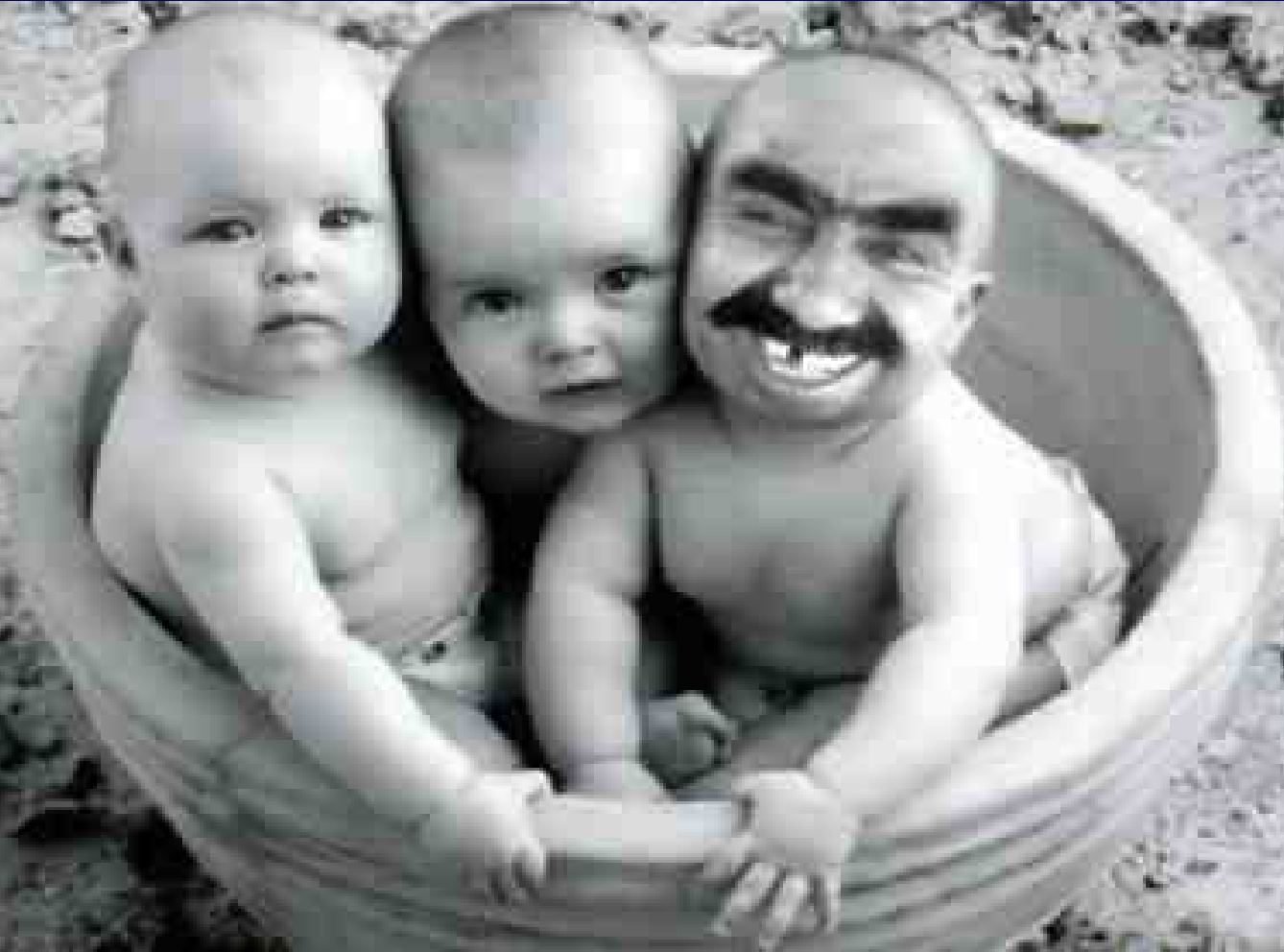
Figure 4: Clinical pregnancy rate per randomized couple

ASİSTE HATCHING

- 28 çalışma (5507 olgu)
- Tekrarlayan IVF başarısızlığı olan grupta RR 1.75 gebelik oranı artmış
- DET grubunda RR 1.36 gebelik oranı artmış
- Fresh siklüs ve iyi prognozlu olgularda fark saptanmamış

ASİSTE HATCHING

Aynı zamanda tüm gruplarda çoğul gebelik oranı artmış olarak saptandı



Endometrial pattern

■ Retrospektif 2896 vakanın endometrium kalınlık ve patern incelemesi

Table 4

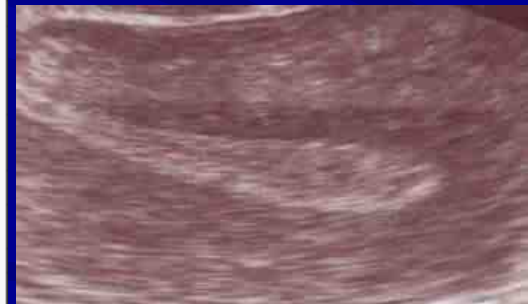
Clinical outcome according to thickness grouping and combined grouping of thickness and pattern

Thickness grouping	CPR	Miscarriage rate	CPR by pattern A ^a	CPR by pattern B ^a	p ^b
Group 1(n = 52)	23.1%	8.3%	11/45(24.4%)	1/7(14.3%)	NS
Group 2(n = 2349)	47.6%	8.9%	1047/2183(48%)	71/166(42.8%)	NS
Group 3(n = 495)	55.2%	6.6%	236/432(54.6%)	37/63(58.7%)	NS
p ^b	< 0.01	NS	< 0.01	< 0.05	-

Endometrial thickness: Group 1: ≤ 7 mm; Group 2: >7 to 14 mm; Group 3: >14 mm

Pattern A = triple-line pattern, hypoechoic endometrium with well-defined hyperechoic outer walls and central echogenic line

Pattern B = no-triple line pattern, isoechoic or homogeneous hyperechoic endometrium with a poorly defined or absent central echogenic line



Chen et al. Reproductive Biology and Endocrinology 2010, 8:30

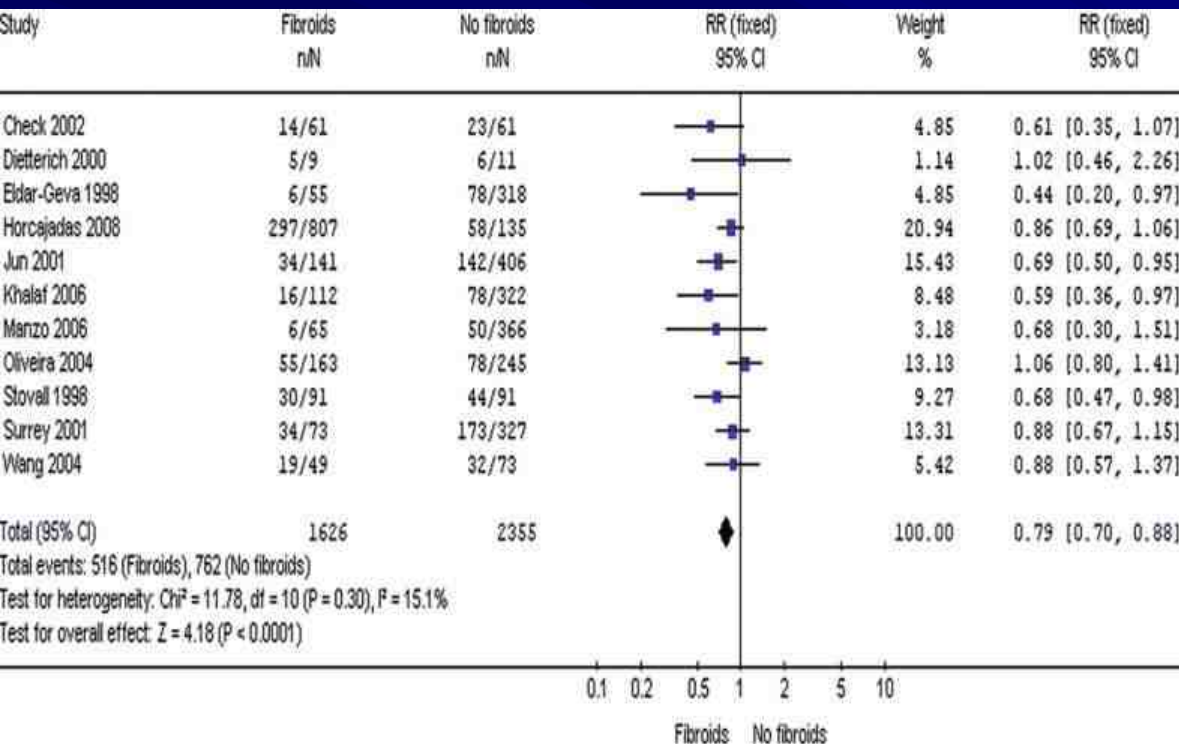
Endometrial kalınlık

Endometrial thickness (mm)	Cycles (n)	Clinical pregnancy rate (cycles, %)	Miscarriage rate (n, %)
≤ 6	9	1 (11.1)	0
>6 to ≤ 7	43	11 (25.6)	1 (9.1)
>7 to ≤ 8	142	64 (45.1)	4 (6.3)
>8 to ≤ 9	277	106 (38.3)	13 (12.3)
>9 to ≤ 10	393	191 (48.6)	16 (8.4)
>10 to ≤ 11	424	204 (48.1)	20 (9.8)
>11 to ≤ 12	416	198 (47.6)	14 (7.1)
>12 to ≤ 13	377	185 (49.1)	15 (8.1)
>13 to ≤ 14	320	170 (53.1)	17 (10.0)
>14 to ≤ 15	198	117 (59.1)	9 (7.7)
>15 to ≤ 16	124	57 (46.0)	3 (5.3)
>16 to ≤ 17	71	40 (56.3)	5 (12.5)
>17 to 26.7	102	59 (57.8)	1 (1.7)

Endometrial Reseptivite

- ❖ KOS
- ❖ Endometrial kalınlık
- ❖ Endometriozis ,adenomyozis
- ❖ Yapısal uterin anomaliler
 - ❖ Myomlar
 - ❖ Mülleryan anomaliler
 - ❖ Adezyonlar
 - ❖ Endometrial polipler

Myoma ve ART



Pooling of results from 11 of the 19 studies that reported live birth as an outcome showed a statistically significant 21% relative reduction in live birth rate in women with non-cavity-distorting intramural fibroids compared with women without fibroids (RR = 0.79, 95% CI: 0.70–0.88 $P < 0.0001$)

The effect of intramural fibroids without uterine cavity involvement on the outcome of IVF treatment: a systematic review and meta-analysis

Sesh Kamal Sunkara *hum reprod* 2010



ARTICLE

Septate, subseptate and arcuate uterus decrease pregnancy and live birth rates in IVF/ICSI

T Tomaževič *, H Ban-Frangež, I Virant-Klun, I Verdenik, B Požlep, E Vrtačnik-Bokal

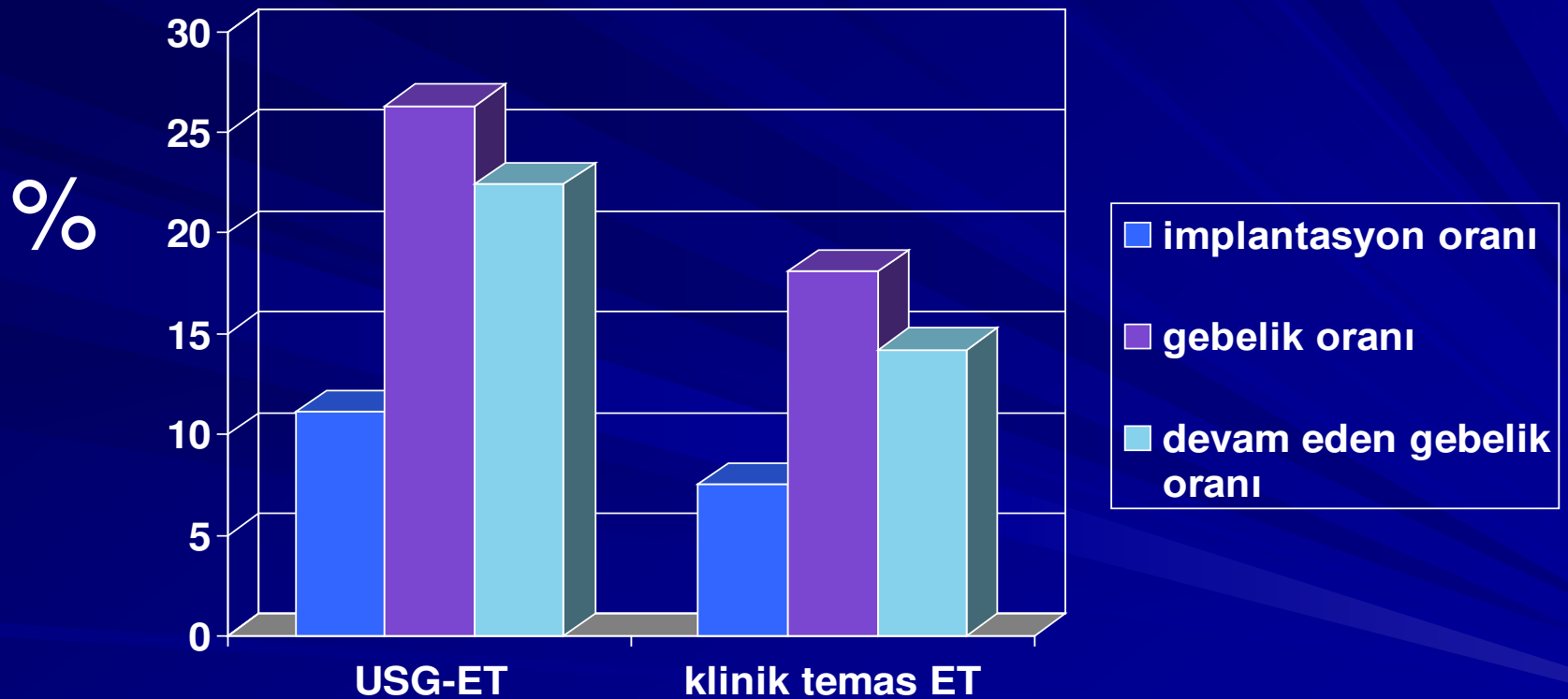
Table 5 Analysis of embryo transfers in the study and in the control groups. Embryo transfers with two or three embryos (1993–1998) and two embryos (1999–2004) with at least one best-quality embryo transferred.

Variable	Study	Control	OR (95% CI)	P-value
Large septum (septate and subseptate uterus) before resection				
<i>n</i>	52	101		
Pregnancy	5 (9.6)	44 (43.6)	7.256 (2.663–19.771)	0.001
Live birth	1 (1.9)	39 (38.6)	32.081 (5.363–189.661)	0.001
Small partial septum (arcuate uterus) before resection				
<i>n</i>	67	135		
Pregnancy	14 (20.9)	48 (35.6)	2.086 (1.051–4.149)	0.03
Live birth	2 (3.0)	41 (30.4)	14.176 (3.648–54.702)	0.001
Large septum (septate and subseptate uterus) after resection				
<i>n</i>	123	256		
Pregnancy	40 (32.5)	103 (40.2)	1.397 (0.889–2.196)	NS
Live birth	30 (24.4)	82 (32.0)	1.461 (0.899–2.374)	NS
Small partial septum (arcuate uterus) after resection				
<i>n</i>	125	261		
Pregnancy	46 (36.8)	102 (39.1)	1.102 (0.780–1.527)	NS
Live birth	35 (28.0)	84 (32.2)	1.220 (0.765–1.946)	NS

Embryo Transfer Tekniđi ve IVF

- ❖ Aynı ovulasyon indüksiyonu ve protokollere rağmen klinisyenlerin deđiřik oranlardaki gebelik oranları mevcut.
- ❖ Atravmatik embriyo transferi başarılı implantasyon için esastır.
 - ❖ Uterin kaviteye zor giriş
 - ❖ Endometriumun katater ile hasarlanması
 - ❖ Uterin kontraksiyon
 - ❖ Optimal olmayan yere yerleřtirilme
 - ❖ Yerleřtirme sırasında embriyonun hasarlanması

Embryo transfer tekniđi



Matorras et al. 2002

Ultrason Kılavuzluğunda Embriyo Transferi ile Klinik Temas Tekniği

Table IV. Meta-analysis of pregnancy rates in randomized trials. Ultrasound (US)-guided transfer versus clinical touch transfer

Author	Year	US-guided transfer (%)	Clinical touch transfer (%)	P-value
Randomized trials				
Coroleu <i>et al.</i>	2000	50 (91/182)	33.7 (61/180)	< 0.05
Tang <i>et al.</i>	2001	26.0 (115/441)	22.5 (81/359)	NS
Matorras <i>et al.</i> (this study)	2002	26.3 (67/255)	18.1 (47/260)	< 0.05
Quasi-randomized trials				
Hurley <i>et al.</i>	1991	20.2 (19/94)	17.5 (43/246)	NS
Al-Shawaf <i>et al.</i>	1993	28.9 (44/152)	30.3 (27/89)	NS
Prapas <i>et al.</i>	1995	36.1 (22/61)	22.5 (16/71)	< 0.05
Kan <i>et al.</i>	1999	37.8 (37/98)	29.8 (28/97)	NS
Prapas <i>et al.</i>	2001	47.6 (206/433)	36.0 (229/636)	< 0.05
Global meta-analysis	2002	35.0 (601/1716)	27.5 (532/1938)	< 0.0001 ^a
Meta-analysis including only truly randomized trials	2002	31.4 (273/870)	23.7 (189/799)	< 0.001 ^b

^a $\chi^2 = 20$; odds ratio (OR) = 1.4; 95% confidence interval (CI) = 1.23–1.64.

^b $\chi^2 = 12$; OR = 1.5; 95% CI = 1.18–1.85.

NS = not significant.

Influence of the time interval between embryo catheter loading and discharging on the success of IVF

R.Matorras, R.Mendoza, A.Expósito and F.J.Rodriguez-Escudero

Table II. Duration of the interval loading discharging embryos (ILDE), cycle characteristics and cycle results

	<30 s (n = 113)	31–60 s (n = 214)	61–120 s (n = 76)	> 120 s (n = 47)	P
Woman's age (years)	34.01 ± 3.04	34.40 ± 2.83	33.97 ± 3.57	33.93 ± 3.73	Ns
Infertility duration (years)	5.21 ± 2.54	5.07 ± 2.66	5.19 ± 2.54	5.20 ± 2.61	Ns
Primary infertility (%)	91.1	89.7	89.5	89.4	Ns
ICSI (%)	53.1	50.9	57.8	57.5	Ns
Obtained oocytes	11.00 ± 6.13	12.28 ± 6.22	12.22 ± 6.20	13.23 ± 5.83	Ns
Inseminated oocytes	9.30 ± 5.30	10.29 ± 5.30	9.92 ± 5.08	10.46 ± 4.03	Ns
Fertilized oocytes	5.30 ± 3.97	6.03 ± 4.07	5.34 ± 3.63	5.74 ± 3.16	Ns
Transferred embryos	3.05 ± 1.06	3.12 ± 0.99	3.07 ± 1.09	3.14 ± 0.85	Ns
Transferred class I embryos	1.95 ± 1.00	2.10 ± 0.98	2.37 ± 0.98	2.17 ± 0.99	Ns
% of non easy transfers	2.6	0.5	1.3	19.1	<0.001
Pregnancy rate (%)	38.9	33.2	31.6	19.1	<0.05
Implantation rate (%)	21.2	15.4	15.9	9.4	<0.01
Pregnancy rate excluding non-easy transfers (%)	40.0	33.3	32.0	19.4	<0.05
Implantation rate excluding non easy transfers (%)	21.4	15.4	16.2	8.8	<0.01

Impact of embryo replacement depth on in vitro fertilization and embryo transfer outcomes

Bulent Tiras, M.D.,^{a,b} Mehtap Polat, M.D.,^a Umit Korucuoglu, M.D.,^b Hulusi Bulent Zeyneloglu, M.D.,^c and Hakan Yarali, M.D.^d

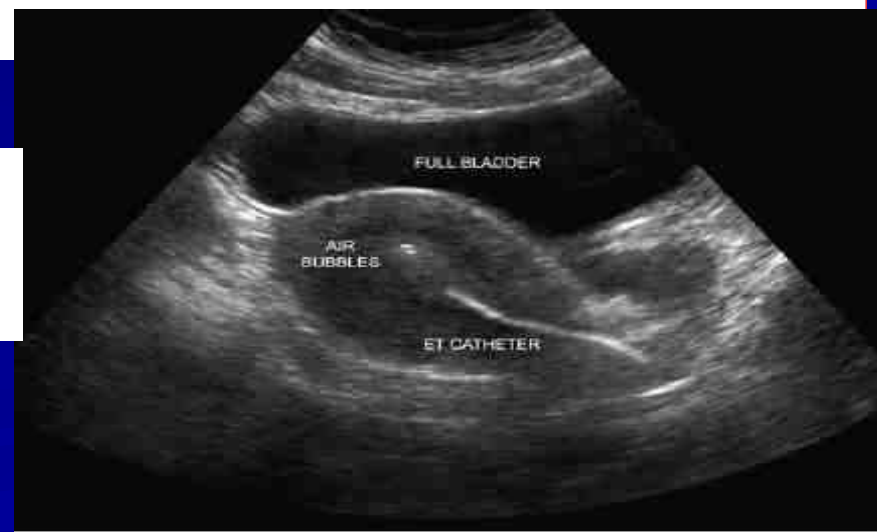
^a Anatolia IVF Center; ^b Gazi University Faculty of Medicine, Department of Obstetrics and Gynecology; ^c Başkent University Faculty of Medicine; and ^d Hacettepe University Faculty of Medicine, Department of Obstetrics and Gynecology, Ankara, Turkey

Pregnancy rates and outcome of gestation in the five groups studied.

Variable	Group 1 (n = 31; 0.6%)	Group 2 (n = 676; 13.4%)	Group 3 (n = 2,690; 53.2%)	Group 4 (n = 1,296; 25.6%)	Group 5 (n = 362; 7.2%)
Pregnancy rate/transfer (%; n)	32.3% (10/31)	44.9% (304/676)	44.2% (1,189/2,690)	44.2% (566/1,281)	43.3% (156/360)
Ongoing pregnancy rate (%; n)	29.0% (9/31)	40.2% (272/676)	40.0% (1,076/2,690)	40.0% (512/1,281)	39.2% (141/360)
Miscarriage rate (%; n)	10.0% (1/10)	9.5% (29/304)	9.2% (109/1,189)	9.2% (52/566)	9.6% (15/156)
Ectopic pregnancy rate (%; n)	—	1.0% (3/304)	0.3% (4/1,189)	0.4% (2/566)	—

Tiras. What is the best site for embryo transfer? Fertil Steril 2010.

a distance >10 mm to <20 mm seems to be the best site for embryo transfer to achieve higher PRs.



Edward E. Wallach, M.D.
Associate Editor

Optimizing the technique of embryo transfer

Lindsay Mains, M.D., and Bradley J. Van Voorhis, M.D.

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SUMMARY

Evidence-based Guidelines

1. Effort should be made to avoid “difficult” transfers.
2. Ultrasound guidance will result in easier transfers with improved outcomes.
3. Soft catheters should be used when feasible.

Recommendations Based on Expert Opinion

1. Trial transfers allow better preparation for difficult transfers.
2. Cervical mucus should be removed to potentially decrease bacterial contamination and mucus plugging of the catheter.
3. Embryos should be deposited in the midportion of the uterus.
4. Negative pressure should be minimized during withdrawal of the catheter.
5. The procedure should be done in a minimum amount of time.

İmplantasyonu etkileyen faktörler

- Lokal faktörler (endometrium)
- Uterus anomalileri
- Geçirilmiş uterin operasyonlar
- Myoma uteri
- Endometrial kavitede sıvı bulunması
- Hidrosalpenks
- Endometriozis

ET'de Etkili Faktörler

The relative importance of factors important for successful embryo transfer.^a

Priority	Mean score ^b
Removal of hydrosalpinges	6.8
Absence of blood or mucus	6.6
Type of catheter	6.1
Not touching fundus	5.8
Avoiding tenaculum	5.7
Removal of all mucus	5.2
Ultrasonography of cavity before procedure	4.3
Leaving catheter in place for 1 minute	4.2
30 minutes of bed rest	3.8
Trial transfer	3.1
Ultrasonographic monitoring	2.6
Antiprostaglandins to prevent uterine contractions	1.9

^a Data from reference 11.

^b The possible score for each factor was on a scale of 1 to 10.

Schoolcraft. Embryo transfer. Fertil Steril 2001.

Predictive factors in *in vitro* fertilization (IVF): a systematic review and meta-analysis

L.L. van Loendersloot ^{1,*}, M. van Wely ¹, J. Limpens ², P.M.M. Bossuyt ³, S. Repping ¹, and F. van der Veen ¹

RESULTS: Fourteen studies were identified. A summary OR could be calculated for five factors. We found negative associations between pregnancy and female age [OR: 0.95, 95% confidence interval (CI): 0.94–0.96], duration of subfertility (OR: 0.99, 95% CI: 0.98–1.00) and basal FSH (OR: 0.94, 95% CI: 0.88–1.00). We found a positive association with number of oocytes (OR 1.04, 95% CI: 1.02–1.07). Better embryo quality was associated with higher pregnancy chances. No significant association was found for the type of infertility and fertilization method. A summary OR for IVF indication and number of embryos transferred could not be calculated, because studies reporting on these used different reference categories.



OLUMSUZ FAKTÖRLER

- Kilo, sigara, kafein
- İleri yaş, yüksek FSH ,E2
- Elde edilen oosit sayısının <5
- Stimülasyon süresinin uzaması
- hCG günü artmış Progesteron
- Azalmış oosit ve sperm kalitesi
- <7mm endometrium
- Myom, septum varlığı

OLUMLU FAKTÖRLER

- IMSI , AH, Embriyo izleme sistemleri kullanımı
- Blastosit transferi
- ET'de USG ve soft katater kullanımı

DİKKATİNİZ İÇİN
TEŞEKKÜR
EDERİM