



Fertility preservation and ovarian endometriosis

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Personal COIs: 2019-2022 Editorial Board Involvement
(Reprod Scie, Plos ONE, Scie Rep, Reprod
Biol Endocrinol)
2019: n=1 Consultant as a speaker
2021: n=1 Honorarium as a reviewer
2021-2022: Fee for an academic master

Institutional COIs: 2019-2022: **Grants** (competitive and non-
competitive) **for research activity** (Theramex grant 2019, Italian
Ministry of Health, 2019)



Plan of the presentation

- ❖ Why?
- ❖ Should we do it?
- ❖ When?



Plan of the presentation

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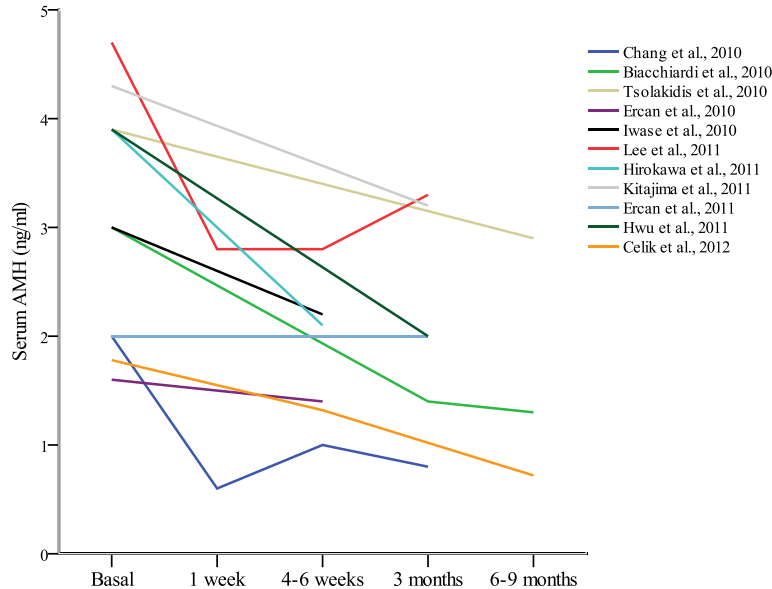
Reasons to claim fertility preservation in young age

Level of evidence

- ❖ Endometriosis affects fertility ++
- ❖ Endometriosis is a recurrent disease ++
- ❖ Ovarian surgery damages ovarian reserve ++
- ❖ Endometriomas damage ovarian reserve +
- ❖ Age and ovarian reserve are crucial for preservation ++

Surgery damages ovarian reserve

AMH fluctuations after stripping

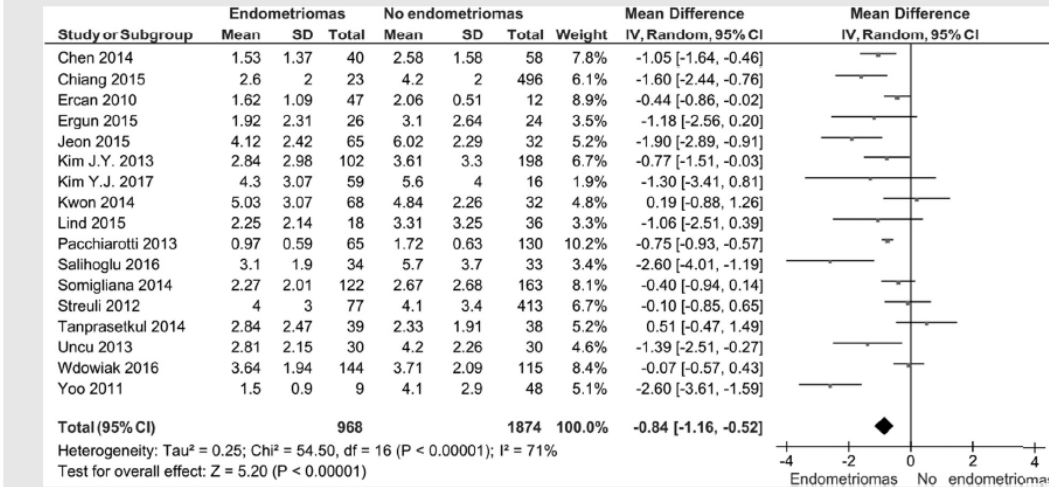


-1.13 ng/ml
(95% CI: 0.37-1.88)
p=0.003

Endometrioma damages ovarian reserve

Decrease of AMH in women not operated for endometriosis

FIGURE 1



Meta-analysis. Weighted mean difference in AMH in patients with ovarian endometriomas compared to patients without ovarian endometriomas.

Muzii. AMH is reduced with endometriomas. Fertil Steril 2018.

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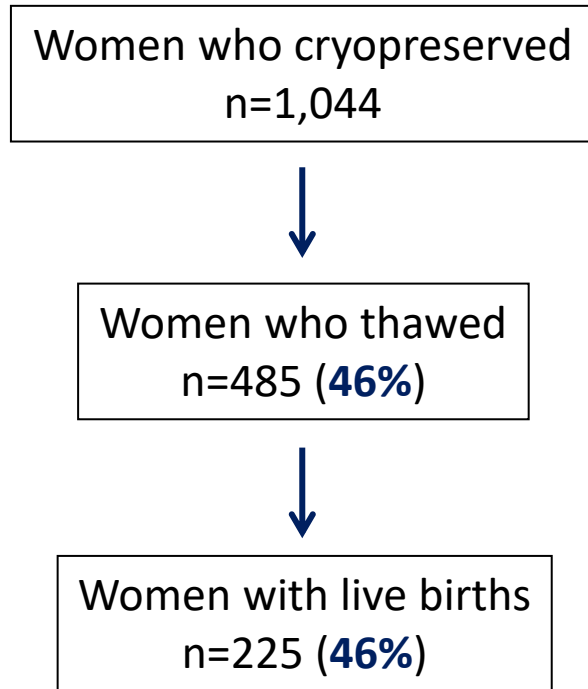
Plan of the presentation

- ❖ Why?
- ❖ **Should we do it?**
- ❖ When?

Evidence of effectiveness

Study	N. cases	Frozen material
Elizur <i>et al.</i> , 2009	1	Oocytes
Garcia-Velasco <i>et al.</i> , 2013	38	Oocytes
Raad <i>et al.</i> , 2018	49	Oocytes
Cobo <i>et al.</i> , 2020	1,044	Oocytes
Kim <i>et al.</i> , 2020	34	Oocytes
Mathieu d'Argent <i>et al.</i> , 2020	108	Oocytes

Incremental benefit



- ❖ Mean time between freezing and thawing:
→ **1.6 years**
- ❖ Among women who failed to become pregnant, 58 came again to perform fresh cycles:
→ 24 conceived (**41%**)

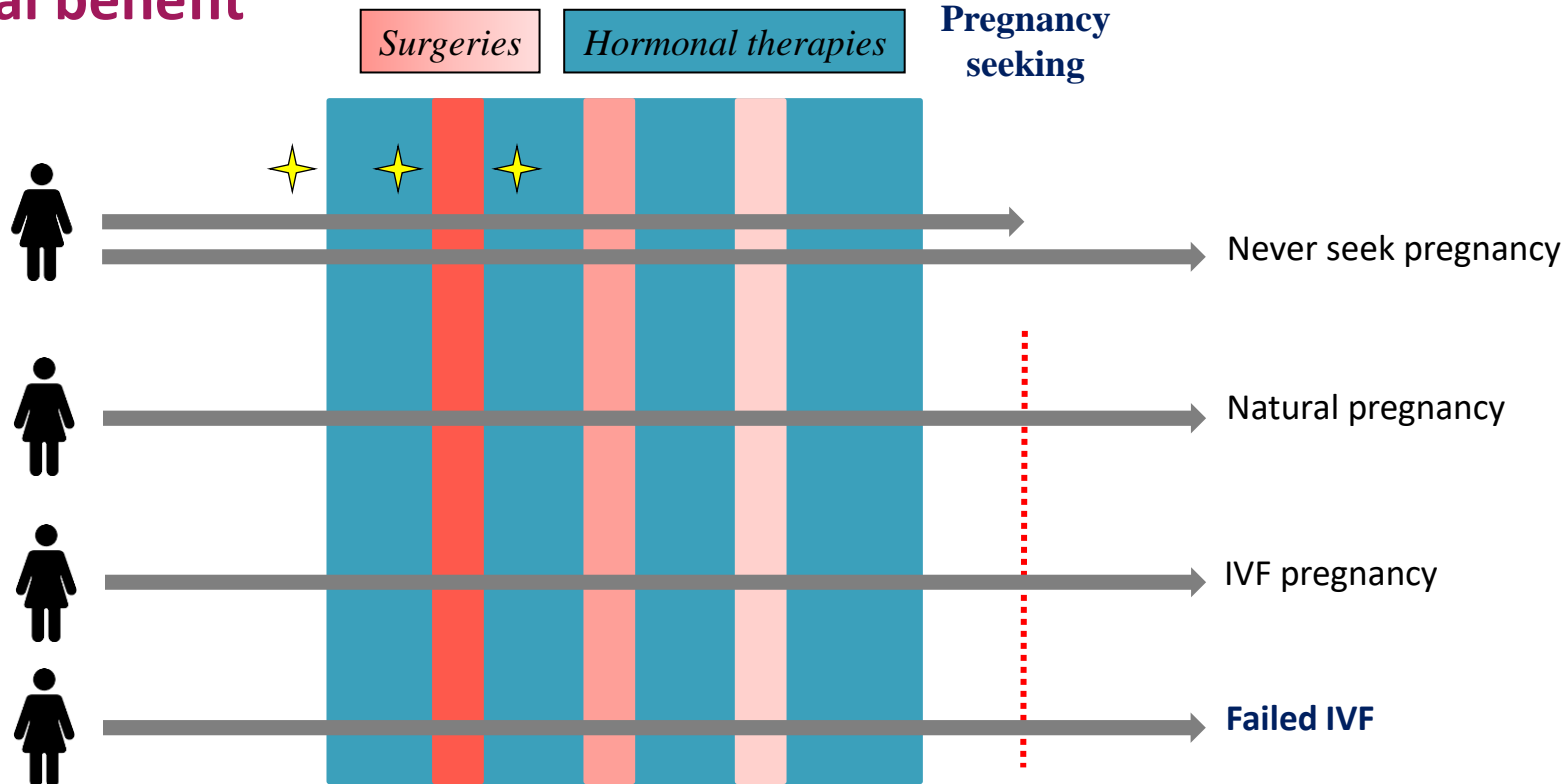


‘the vitrification of oocytes was performed as adjuvant
option within the treatment of endometriosis-related infertility’

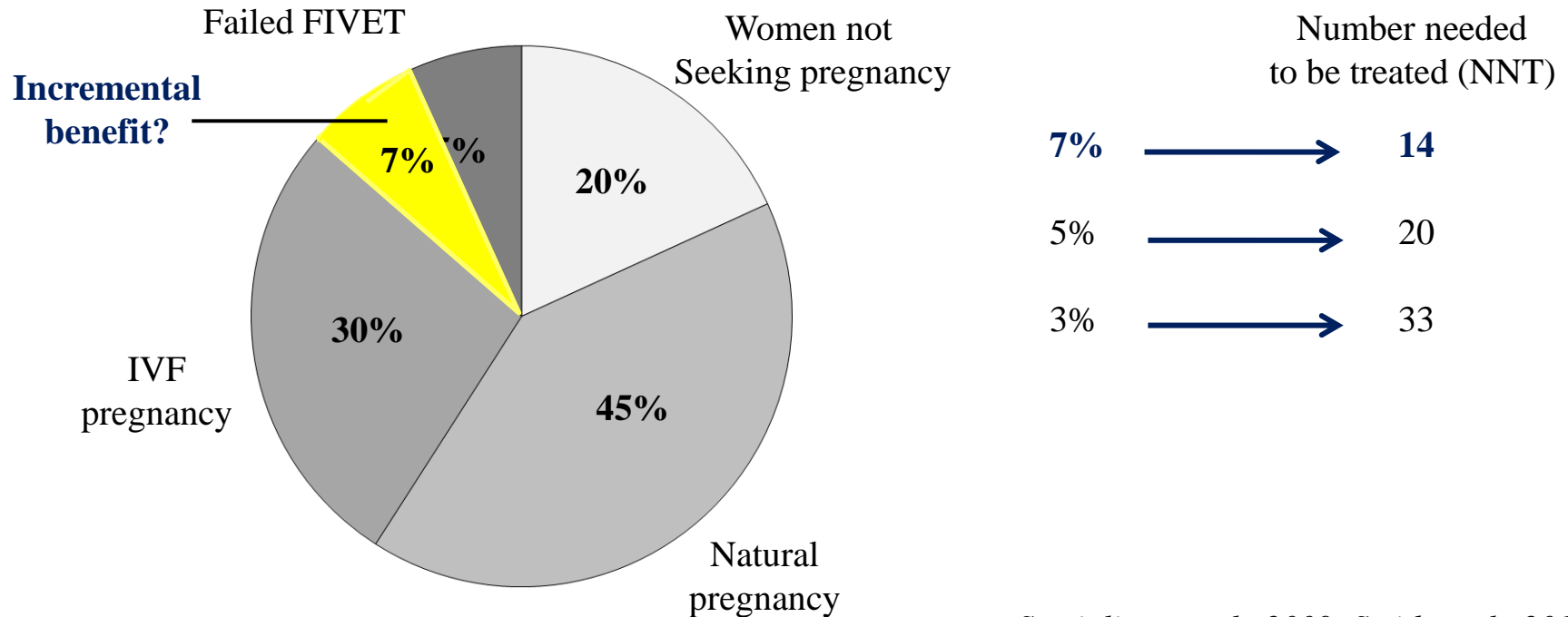
Cobo et al., Fertil Steril, 2020

This may overestimate the benefit of fertility preservation

Incremental benefit



Incremental benefit





Plan of the presentation

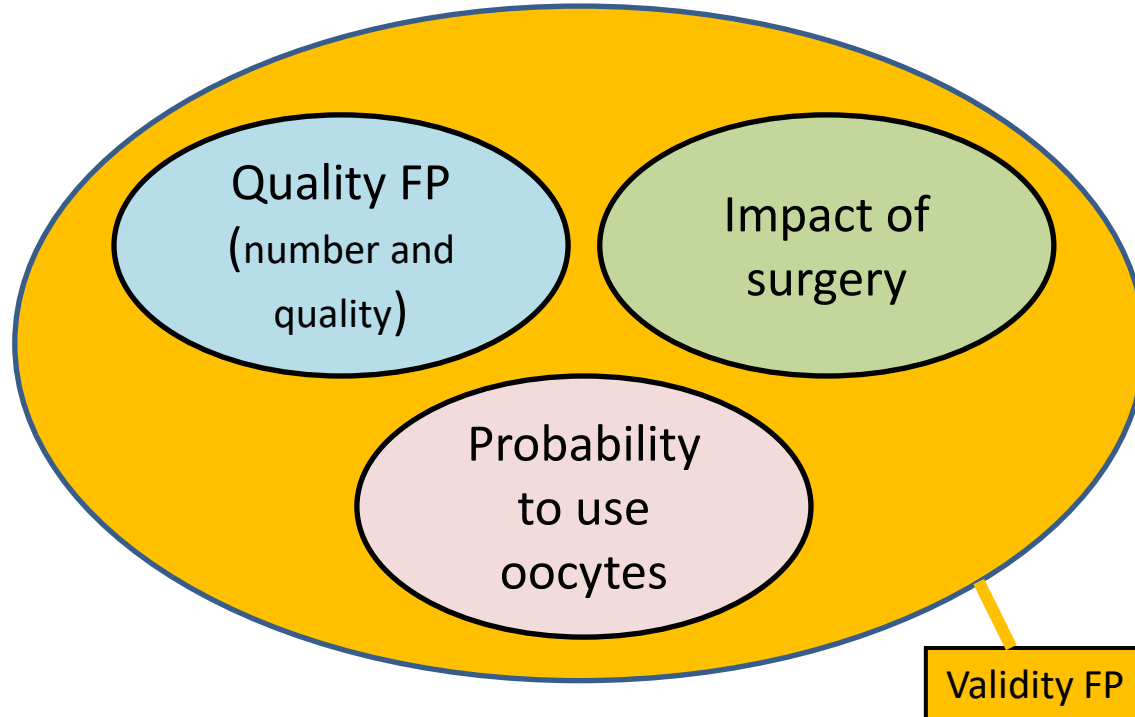
- ❖ Why?
- ❖ Should we do it?
- ❖ **When?**



Possible clinical situations in endometriosis

1. Unilateral cyst
2. Bilateral cysts
3. Deep endometriosis - no cyst
4. Previous unilateral cystectomy - no recurrence
5. Previous bilateral cystectomy - no recurrence
6. Previous unilateral cystectomy - omolateral recurrence
7. Previous unilateral cystectomy - contralateral recurrence
8. Previous bilateral cystectomy - unilateral recurrence
9. Previous bilateral cystectomy - bilateral recurrence

When?



When?

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	Quality FP	Role of surgery	Prob of use	Total
1. Unilateral cyst	2	5	9	7
2. Bilateral cysts	5	1	6	1
3. Deep endometriosis - no cyst	1	7	8	8
4. Previous unilateral cystectomy - no recurrence	3	8	7	9
5. Previous bilateral cystectomy - no recurrence	6	9	5	3
6. Previous unilateral cystectomy - omolateral recurrence	4	6	4	6
7. Previous unilateral cystectomy - contralateral recurrence	7	2	3	2
8. Previous bilateral cystectomy - unilateral recurrence	8	4	2	4
9. Previous bilateral cystectomy - bilateral recurrence	9	3	1	5

When?

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Severe and recurrent ovarian endometriosis



15th

International Congress of the
Jordanian Society of Obstetricians
and Gynecologists

In collaboration with The Jordanian British
Society for Obstetrics & Gynecology

REVIEW ARTICLE

Edward W. Campion, M.D., Editor

Fertility Preservation in Women

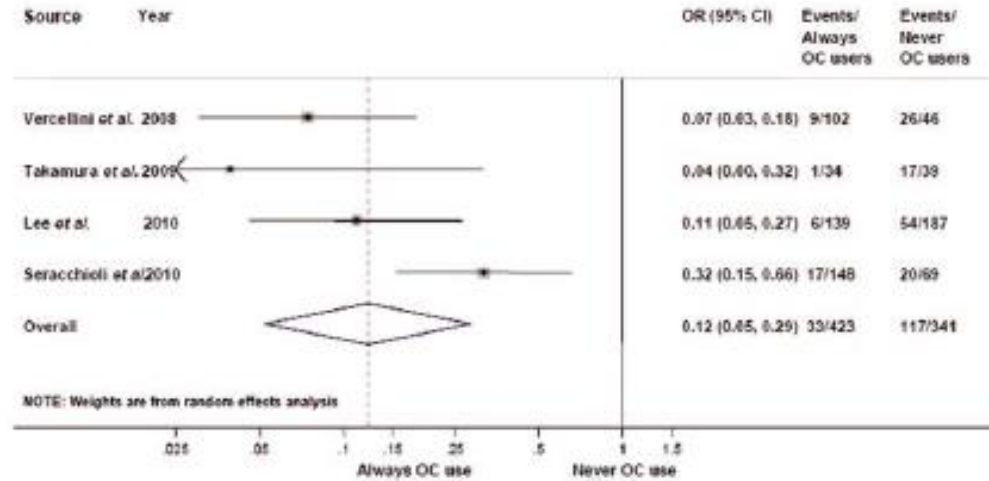
Jacques Donnez, M.D., Ph.D., and Marie-Madeleine Dolmans, M.D., Ph.D.

When?

Table 1. Indications for Fertility Preservation.
Malignant diseases requiring gonadotoxic chemotherapy, radiotherapy, or bone marrow transplantation
Hematologic diseases (leukemia, Hodgkin's lymphoma, non-Hodgkin's lymphoma)
Breast cancer
Sarcoma
Some pelvic cancers
Nonmalignant conditions
Systemic diseases requiring chemotherapy, radiotherapy, or bone marrow transplantation
Ovarian diseases
Bilateral benign ovarian tumors
Severe and recurrent ovarian endometriosis
Possible ovarian torsion
Risk of premature ovarian insufficiency
Family history
Turner's syndrome
Personal reasons
Age
Childbearing postponed until later in life

“Severe and recurrent ovarian endometriosis”

Prevention: Estroprogestins



OR=0.12 (95%IC: 0.05-0.29)

The risk of recurrence is reduced with the use of estroprogestins

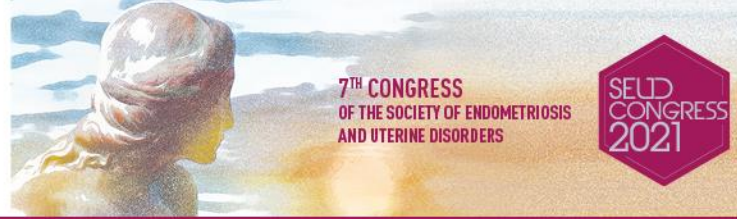
Conclusions

Fertility preservation may be considered in women with endometriosis.

However, the indication remains **EXPERIMENTAL**. The **incremental benefit** is uncertain.

Oocyte cryopreservation seems to be more valid in women with **endometriomas in both ovaries**

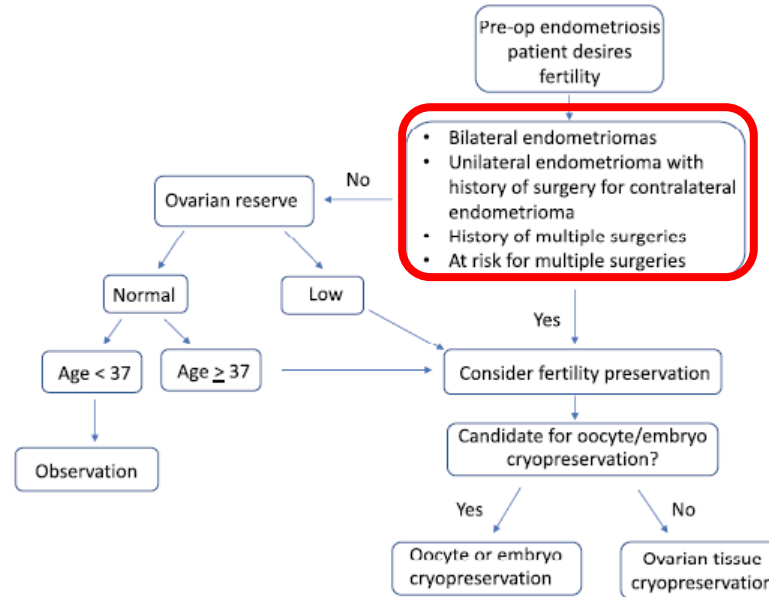
Prevention is routinely recommended



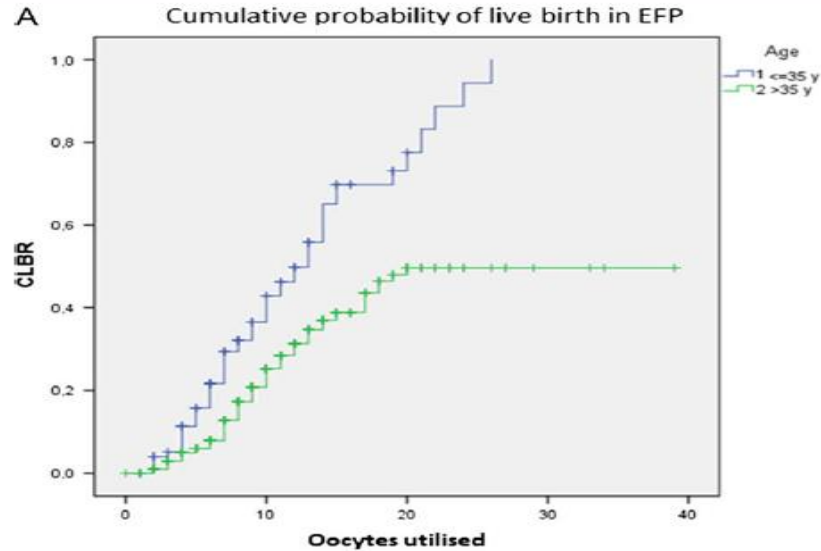
THANKS FOR THE ATTENTION



When?



Fertility preservation: *LBR per oocyte correlated with age*



Kaplan-Meier plotting of the cumulative live birth rates (CLBR) of at least one baby, depending on the total number of consumed oocytes and categorized by age (≤ 35 y and ≥ 36 y)

Age ≤ 35 , N = 123		Age > 35 , N = 518	
N°oocytes	CLBR(95%CI)	N°oocytes	CLBR(95%CI)
5	15.8 (8.4–23.1)	5	5.9 (3.6–8.3)
8	32.0 (22.1–41.9)	8	17.3 (13.3–21.3)
10	42.8 (31.7–53.9)	10	25.2 (20.2–30.1)
15	69.8 (57.4–82.2)	15	38.8 (32.0–45.6)
20	77.6 (64.4–90.9)	20	49.6 (40.7–58.4)
24	94.4 (84.3–100.4)		

Cobo et al., 2018



Fertility preservation: *Outcomes related age*



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AND UTERINE DISORDERS



Fertility and Sterility®

TABLE 2

In vitro fertilization data and clinical outcome according to age in years.

Parameters	≤35	>35	P value
No. of patients	260	225	NA
Mean age (y)	32.3 ± 2.6	38.3 ± 1.9	<.001
No. of OS cycles	422 (1.7 ± 1.0)	409 (1.7 ± 1.1)	.991
No. of ICSI procedures	288 (1.1 ± 0.1)	241 (1.0 ± 0.2)	.990
Antral follicular count	13.5 ± 8.7	8.8 ± 5.8	<.001
No. of retrieved oocytes/cycle	8.4 ± 7.3	6.0 ± 5.4	<.001
No. of retrieved oocytes/patient	13.5 ± 9.4	10.4 ± 6.3	<.001
No. of MII oocytes/cycle	6.6 ± 5.9	4.6 ± 4.3	<.001
No. of MII oocytes/patient	10.7 ± 7.9	8.0 ± 4.9	<.001
Survival rate (%)	85.1	80.8	.033
Embryo score (%)			<.001
A	14.9	9.8	
B	38.5	19.4	
C	15.0	31.0	
D	26.3	28.9	
E	5.3	10.9	
Clinical pregnancy rate (%)	49.2	41.4	<.001
Ongoing pregnancy rate (%)	40.9	29.6	.022
CLBR/patient (%)	161 (61.9)	64 (28.4)	<.001

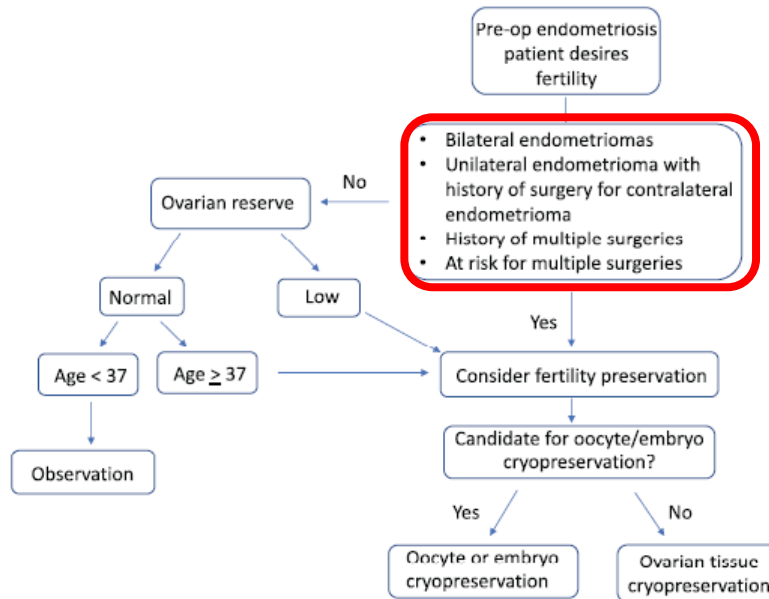
Note: Unless otherwise indicated, numbers are mean ± standard deviation. CLBR = cumulative live-birth rate; ICSI = intracytoplasmic sperm injection; MII = metaphase II; OS = ovarian stimulation. Cobo. FP can help patients with endometriosis. Fertil Steril 2019.



Fertility preservation in women affected by endometriosis:

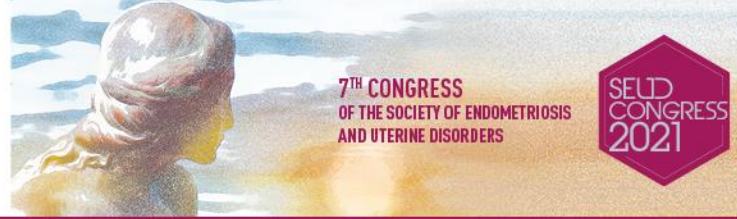


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Llarena et al 2019





When?

	Level of evidence
❖ Oocyte cryopreservation is influenced by age	+ + +
❖ Oocyte cryopreservation is influenced by ovarian reserve	+ + +
❖ Ovarian reserve decreases with age	+ + +
❖ A previous ovariectomy does not reduce IVF success rate	+ + +
❖ More than 1 cycle of oocyte cryopreservation is possible	+ + +
❖ A second line surgery is of limited efficacy on fertility	+ +
❖ Estroprogestins prevent endometrioma occurrence	+ + +