NATURAL IVF CYCLE WITH AND WITHOUT HCG ADMINISTRATION

Renato Bauman, Sveti Duh Hospital Zagreb, Croatia

Human reproduction department

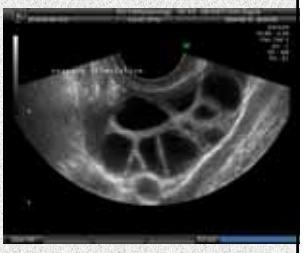
The patient friendly approach to ART, ESHRE Campus, Maribor, Slovenia 28.02.2009.

Ovarian hyperstimulation

- **Higher pregnancy rates**

but

- **expensive**
- **complications!**



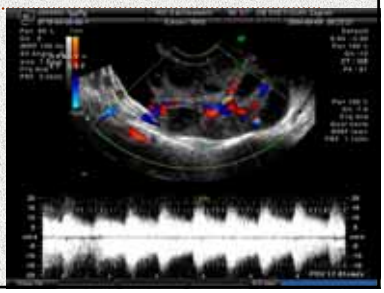
- *(OHSS, multiple pregnancies, extrauterine pregnancies, …)*

Complications of ovarian hyperstimulation

- OHSS (24%)
- MULTIPLE PREGNANCIES (22% gemini, 4,3% trigemini, 0,4% quadrigemini)
- SPONTANEOUS ABORTIONS ? (20,9% in IVF pregnancies, 10% in spontaneous pregnancies)

Potential health risks of repeated hyperstimulation procedures

- EFFECT ON OVARIAN FUNCTION ?
- OVARIAN CARCINOMA ??



Complications of ovarian hyperstimulation

- **High costs** (***35000 USD*** / newborn) Daya, 1995.
- Prolonged i.m. and/or s.c. administration of stimulation drugs
- Longer and more painful aspiration procedure

NATURAL CYCLE IVF

COST EFFECTIVE: average cost per one newborn is 5 times lower if the pregnancy is achieved by IVF in the natural cycle

1.Daya S, Gunby J, Hughes EG. Natural cycles for in-vitro fertilization: cost-effectiveness analysis and factors influencing outcome. Hum Reprod 1995;10:1719-1724

NATURAL CYCLE

ALTERNATIVE TO THE STIMULATED CYCLE

TIMING OF OOCYTE RETRIEVAL

- Most studies (19) ultrasound measurements starting cycle day 6-11 and ovulation triggering with HCG when the follicle is 15-20 mm
- The interval between HCG injection (2500 – 10000) and oocyte retrieval 31-36 h

Pelink et al, 2002. Hum Reprod Update

TIMING OF OOCYTE RETRIEVAL – studies using HCG

- Foulot (1989. 71 patients)
- Aboulghar (1995. 58 patients)
- Tomažević (1996. – 73 patients)
- Janssens (2000.- 50 patients)
- Nargund (2001. – 52 patients)
- Tomažević (2007. – 397 cycles)
- Vlaisavljević (2007.- 1024 cycles)
- Schimberni (2008. – 500 cycles)

TIMING OF OOCYTE RETRIEVAL

- In 2 studies monitoring is carried out by serial measurements of E2 and LH , twice daily until the detection of LH surge (Zayed, 1997. Hum Reprod, Lenton 2007.Reprod Biome Online)
- Egg collection is ideally timed to be 34-36 h from the onset of the spontaneous LH surge

TIMING OF OOCYTE RETRIEVAL

- *Lenton 2007* comparison with (222 cycles)/without HCG (495 cycles)
- Without: 81% successfull OR, clinical pregnancies 14,8% per ET, 9,4% per oocyte, 7,7% per cycle
- With HCG: 76% successfull OR, clinical pregnancies 13,5% per ET, 8,9% per oocyte, 6,7% per started cycle

BUT

- 7-day IVF laboratory service
- Egg collection schedueled from 09,00 till 17,00 h (working hours 07,00 – 21,00)

TIMING OF OOCYTE RETRIEVAL

- Efficacy of natural cycle IVF: a review of the literature (Pelinck et al, 2002.)
- 20 studies, total of 1800 cycles
- With+without hCG
- 129 pregnancies
- **15,8%** per ET
- **7,2%** per started cycle

TIMING OF OOCYTE RETRIEVAL

- Without HCG:
- Lenton 495 cycles - 38 pregnancies – **14,8%** per Et - **7,7%** per started cycle
- Zayed 145 cycles – 12 pregnancies – **13,5%** per ET - **6,5%** per started cycle

TIMING OF OOCYTE RETRIEVAL

- Sveti Duh Hospital with 5000/6250 IU HCG (US-follicle diameter, endometrium)
- 896 started natural cycles
- 63 pregnancies (**15,9%** per ET
  9,4% per aspiration
  7% per started cycle)

Conclusion
TIMING OF OOCYTE RETRIEVAL

5000 - 10000 HCG!

Possible help in order to reduce the number of premature ovulations and negative aspiration procedures:

- Individualization of patients
- E2 measurements
- LH measurements
- Indomethacin pretreatment (50 mg orally in the morning and 100 mg rectally at night prior to aspiration procedure-*Lenton 2007.* or everyday from follicle diameter of 14 mm - *Kadoch 2008.)*

- Possible help:

- Aspiration needles with double lumen with flushing of follicles (91% positive aspirations with flushing / 68,5% with single lumen, Daya 1995)
- Use of GnRH antagonists

Possible help: Color doppler and perifollicular flow?

- PSV > 10 cm/s
- Perifollicular Power doppler area
- RI < 0,50

?

Conclusion
TIMING OF OOCYTE RETRIEVAL

5000 - 10000 HCG!