Affordable In Vitro Fertilization: Improved Access to Care for Advanced Fertility Treatment

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OBJECTIVES

Upon conclusion of this presentation, the participant should be able to:
1. Define in vitro fertilization (IVF)
2. Discuss limitations for access to care for IVF
3. Discuss ways to make IVF more affordable and accessible for patients.

DISCLOSURES

- AbbVie Speaker’s Bureau
- Ferring Nurses’ Advisory Board
- INVOcell Advisory Board

EVENTS FOR PREGNANCY
IN VITRO FERTILIZATION

• In vitro fertilization (IVF) is literally fertilization in glass.

Original image:

IN VITRO FERTILIZATION

• Originally developed for treatment of tubal factor infertility (lab takes the place of the fallopian tube).
• Current indications:
  • Male factor
  • Endometriosis
  • Ovulatory dysfunction (to minimize the risk of multiples)
  • Refractory infertility treatment
  • Genetic Disorders

HISTORICAL PERSPECTIVE OF IVF

• World’s first IVF baby just turned 41 years old in July, 2019

• Initial cases
  • Tubal factor infertility
  • Natural cycles
  • Women hospitalized to chase the natural LH surge
  • Retrievals performed by laparoscopy
HISTORICAL PERSPECTIVE OF IVF

• Pregnancy rates were initially very low
• Ovarian stimulation was added to increase oocyte yield
  • Only clomiphene citrate and Pergonal™ [hFSH]
• Stimulation became more aggressive to gain more oocytes per retrieval
  • Additional medications approved, including highly purified gonadotropins, recombinant gonadotropins, GnRH agonists, GnRH antagonists
• Multiple embryos transferred

EXPERIENCE LED TO IMPROVEMENTS

• Laboratory Improvements
  • Culture media
  • Culture conditions
  • Adjunct procedures
• Medical Improvements
  • Ovarian stimulation, including new medications
  • Oocyte retrieval techniques
  • Assisted fertilization
  • Embryo transfer procedures

• With medical, pharmacological, laboratory improvements, success rates significantly improved

BENEFITS OF IVF

• Obviates need for fallopian tubes
• Evaluates fertilization and embryo development
• Allows for adjunct procedures
  • assisted fertilization (ICSI)
  • assisted hatching
  • Preimplantation genetic testing (PGT)
  • Donor oocytes
• Excellent pregnancy rates
**DOWNSIDES OF IVF**

- **Practice expenses**
  - Laboratory expenses, e.g. personnel, equipment, incubators

- **Patient costs**
  - Laboratory fees are generally > 1/3 the cost of an IVF cycle
  - Medication costs approach 1/3 the cost of an IVF cycle
  - Extensive monitoring / time off work
  - Emotional, religious
  - Uncertainty
  - Cryopreservation

- **Margin for error**
  - Human
  - Equipment
  - Acts of God

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**DISCONNECT**

Despite the improvements in our knowledge, medications, laboratory media and techniques, and overall success rates, we still base our treatments on primitive IVF.
DO WE REALLY NEED...

- High dose gonadotropins?
- Multiple oocytes?
- Multiple embryos?
- Fancy incubators?
- Multiple cryo tanks (and their risks)

INVOCELL

- Originally described by Ranoux in April 1988
  - A new in vitro fertilization technique: intravaginal culture
  - Fertility and Sterility, 1988, 49 (4), pages 654–657
- Evolved into current commercially available device
- FDA approved in the U. S. in November, 2015
- Mission of INVOBioscience is to improve access to care
- Commercialization rights purchased by Ferring in January, 2019
BENEFITS OF INVOCELL

- Fertilization occurs inside the woman’s body
- Response to body movement
- Response to normal temperature fluctuations
- Eliminates patients’ worry that their embryos visit with embryos on the next shelf
- Early maternal bonding
- Beautiful embryos
KRH RATIONALE FOR INVOCYCLE

• Improved access to care
  • Significantly decreased cost
  • Highly successful

AIRM APPROACH

• Minimal stimulation
  • Combination of oral and injectable ovarian stimulants
• Limited monitoring
  • Average of 1.2 monitoring visits after baselines
• Fast retrieval using oral diazepam for sedation
  • Average of 2 minutes for retrieval
• Immediate ICSI of all metaphase oocytes
• Day 5 embryo transfer under u/s guidance
**AIRM APPROACH**

- ONE THIRD THE COST OF T-IVF: $3900
- Total medication cost is generally <$1000
- Average of three oocytes
- Average of two embryos
- Fewer cycles have embryos to freeze and associated costs (~ 7%)
- Pregnancy rates comparable to traditional IVF

**ON THE AIRM HORIZON**

- Keep in mind ANYTHING that can be done with traditional IVF can be done with INVOcell IVF (except EmbryoScope)
- Anyone with a vagina can carry INVOcell!
- Affordable IVF with Vitrified Donor Oocytes

**AIRM RESULTS**

<table>
<thead>
<tr>
<th>Pregnancy per</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer</td>
<td>70/141</td>
<td>49.6%</td>
</tr>
<tr>
<td>Retrieval successful</td>
<td>70/171</td>
<td>40.9%</td>
</tr>
<tr>
<td>Started cycle</td>
<td>60/213</td>
<td>32.9%</td>
</tr>
<tr>
<td>Twins (all dichorionic)</td>
<td>4/56</td>
<td>7.1%</td>
</tr>
</tbody>
</table>
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