What is Hot in Ovarian Stimulation/Induction

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Topic Overview: Ovarian Stimulation

Benefits of Growth Hormone in the Stimulation Regimen

- The use of human growth hormone (hGH) in poor prognosis patients improves euploidy and implantation rates. A patient-controlled trial (Fernandez)

Ovarian Stimulation Conditions

- Prolonged gonadotropin stimulation in fresh in vitro fertilisation cycles and its impact on pregnancy outcomes (Pereira)
- Double stimulation in a single menstrual cycle increases the number of oocytes retrieved in poor prognosis patients undergoing IVF treatment. Prospective study with historical control (Ubaldi)
- Reproductive outcomes in polycystic ovary syndrome (PCOS) patients undergoing GnRH agonist and GnRH antagonist in vitro fertilisation cycles (Clapp)
- Comparison of standard GnRH antagonist protocol and luteal phase oestradiol/GnRH antagonist priming protocol in the poor responders (Erdem)
Topic Overview: Ovarian Stimulation

The Role of Anti-Müllerian Hormone Levels
• Do serum anti-Müllerian hormone levels correlate with pregnancy outcomes in patients with diminished ovarian reserve undergoing in vitro fertilisation? (Pereira)
• Can anti-Müllerian hormone levels predict clinical pregnancy rates (CPR) in ovulation induction/intrauterine insemination (OI/IUI) cycles? (Lange)

Benefits of Growth Hormone in the Stimulation Regimen
O-128 – The use of human growth hormone (hGH) in poor prognosis patients improves euploidy and implantation rates: A patient-controlled trial

M Fernandez

Oral presentation

Study background, methods and aim

Background
• Human growth hormone (hGH) has been shown to play an important role in gametogenesis, folliculogenesis, and ovulation

Methods
• Prospective, randomised, patient-controlled trial
• Patients underwent ≥2 IVF cycles within 6 months, with hGH administered for 5 weeks (1 IU/day) in one randomly chosen cycle; oestradiol and progesterone were measured on the trigger day
• Preimplantation genetic screening was performed with array comparative genomic hybridisation (aCGH) in all blastocysts obtained and vitrified

Aim
To evaluate the use of hGH during ovarian stimulation in poor prognosis patients.

IU, international unit; IVF, in vitro fertilisation
Fernandez M. Session OR02-06. Presentation O-128
Serum oestradiol was significantly higher when hGH was administered

- The number of oocytes retrieved did not differ between the two groups

The rate of good quality and euploid blastocysts was significantly higher with hGH

Fernandez M. Session OR02-06. Presentation O-128
The implantation and pregnancy rate was significantly higher with hGH

Summary and conclusions

Summary
- Serum oestradiol was significantly higher when hGH was administered
- The rates of good quality and euploid blastocysts were significantly higher with hGH
- Pregnancy and implantation rates were also significantly higher with hGH

Conclusions
- Treatment with hGH may lead to an improvement in euploidy, embryo quality and implantation by positively affecting follicular development and oocyte maturation
Clinical implications

- The results of this study confirm the previously reported beneficial effects of growth hormone on ovarian stimulation outcomes in poor prognosis patients.\textsuperscript{1,2,3}
- Growth hormone increases the chance of delivering a healthy baby by improving oocyte quality and increasing the chances of obtaining an euploid embryo.
- hGH as adjuvant in IVF cycles may represent a valid option in patients with poor prognosis in a cost-effective manner (see P-651).

P-649 – Prolonged gonadotropin stimulation in fresh in vitro fertilisation cycles and its impact on pregnancy outcomes

N Pereira
Poster presentation

Study Background, Methods and Aim

Background
- Prolonged duration of controlled ovarian stimulation has been associated with decreased chance of live birth after ART

Methods
- A single centre, retrospective chart review of patients initiating fresh IVF cycles resulting in ET between 2008 and 2013
- Demographic characteristics and COS parameters were recorded
- Clinical pregnancy, biochemical pregnancy, spontaneous miscarriage, and live birth rates in patients undergoing COS ≤ 13 days and >13 days were estimated

Aim
- To investigate the impact of prolonged gonadotropin stimulation on pregnancy outcomes after fresh IVF-ET cycles.
COS Lasting for ≤13 Days was Associated with Improved Pregnancy and Live Birth Rates

The adjusted odds of clinical pregnancy (1.76; 95% CI; 1.33–2.34) and live birth rates (1.70; 95% CI; 1.33–2.34) favoured COS ≤13 days. Patients in the >13 days group had more antagonist days and more gonadotropins administered.

- Clinical pregnancy rate, %: 41.1% vs. 28.3% (p <0.001)
- Spontaneous miscarriage rate, %: 7.5% vs. 5.4% (p = 0.23)
- Live birth rate, %: 33.6% vs. 22.9% (p = 0.0005)

$E_2$, oestradiol
Pereira N. Poster. P-649

Live Birth Rates Decreased with Longer Duration of COS, while Abortion Rates Remained Constant

- Patients in the >13 days group with live births were younger (34.6±4.9 years) than those without (38.2±4.72 years)

Pereira N. Poster. P-649
Summary and Conclusions

Summary

- COS lasting for \( \leq 13 \) days was associated with improved pregnancy and live birth rates
- Live birth rates decreased with increased COS length, while abortion rates remained constant

Conclusions

- COS <13 days is associated with increased odds of pregnancy and live birth

Clinical Implications

- This study confirms previous reports that 13 days of COS is a crucial timepoint for ART outcomes.\(^1\),\(^2\)
- Greater stimulation and higher doses of gonadotropin are associated with the decreased ovarian reserve as observed in older patients.\(^3\)
- This study supports findings that it is generally not recommended to perform ovarian stimulation for more than 13 days; however younger women receiving prolonged COS have a better outcome than older ones.

References


Pereira N. Poster. P-649
Study Background, Methods and Aim

Background
- Antral follicle development in the human ovary seems to be characterised by 2–3 waves during an inter-ovulatory interim.
- Accordingly, a new model for controlled ovarian stimulation (COS) has been proposed: a double COS starting first in the early follicular followed by a second COS in the early luteal phase of a single menstrual cycle (DUOSTIM)

Methods
- Patients included had <7 cumulus-oocytes complexes (COC) retrieved in previous cycles, AMH <1.6 ng/mL, and AFC <7
- Mature oocytes were inseminated by ICSI and embryos were cultured up to blastocyst stage and cryopreserved
- The primary outcome was the number of COC retrieved and secondary outcome measures included the number of MII and blastocysts obtained

Aim
To compare DUOSTIM with standard COS protocols in poor prognosis patients.
The Number of COCs Retrieved was Higher with DUOSTIM than with Standards Protocols

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Stim 1</th>
<th>Stim 2</th>
<th>DUOSTIM (Stim 1 + Stim 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>37.71</td>
<td>38.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFC</td>
<td>4.38</td>
<td>4.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMH</td>
<td>0.63</td>
<td>0.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COCs</td>
<td>4.06</td>
<td>4.72</td>
<td>5.0</td>
<td>9.72*</td>
</tr>
<tr>
<td>MII</td>
<td>3.22</td>
<td>2.89</td>
<td>3.5</td>
<td>6.11*</td>
</tr>
<tr>
<td>Blastocyst</td>
<td>0.78</td>
<td>0.94</td>
<td>1.61</td>
<td>2.56*</td>
</tr>
</tbody>
</table>

*p<0.01 for comparisons with control group

- The number of MII and blastocysts retrieved was higher with DUOSTIM than with standard protocols

Summary and Conclusions

Summary
- The number of COCs retrieved was higher with DUOSTIM than with standard protocols

Conclusions
- The double stimulation approach may offer new treatment possibilities for patients with reduced ovarian reserve
Clinical Implications

- Luteal phase stimulation has occasionally been used to retrieve mature oocytes for cryopreservation in case of emergency fertility preservation. It is anticipated that more oocytes could be retrieved after luteal stimulation in patients with poor ovarian response.
- The same protocol of stimulation used by another group in a pilot study led to similar results.
- Dual or ‘double’ stimulation may also be useful for pre-implantation genetic diagnosis cases, in older patients with reduced time to conceive, for patients with poor ovarian response, and for patients requiring emergency fertility preservation.

Study Background, Methods and Aim

**Background**
- The benefit of choosing GnRH agonist versus antagonist in women with PCOS has yet to be determined. The antagonist protocol may offer reduced risk of OHSS.

**Methods**
- Reproductive outcomes were compared between women receiving a GnRH agonist or antagonist.
- Women undergoing IVF from 2007 to 2015 and meeting Rotterdam PCOS criteria were included.

**Aim**
- To compare reproductive outcomes between GnRH agonist and antagonist protocols in PCOS patients undergoing IVF.

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### A Higher Number of Oocytes and MII Oocytes were Retrieved in the GnRH Antagonist Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>GnRH agonist (n=54)</th>
<th>GnRH antagonist (n=37)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oocytes retrieved</td>
<td>13</td>
<td>15</td>
<td>0.043</td>
</tr>
<tr>
<td>No. MII</td>
<td>10.5</td>
<td>13</td>
<td>0.046</td>
</tr>
<tr>
<td>No. oocytes fertilized</td>
<td>6.5</td>
<td>8.5</td>
<td>0.12</td>
</tr>
<tr>
<td>No. Day 3 embryos</td>
<td>6.5</td>
<td>8.5</td>
<td>0.12</td>
</tr>
<tr>
<td>No. Day 5 embryos</td>
<td>4</td>
<td>8</td>
<td>0.03</td>
</tr>
<tr>
<td>Embryos transferred</td>
<td>2</td>
<td>2</td>
<td>0.20</td>
</tr>
<tr>
<td>Implantation rate</td>
<td>0.26</td>
<td>0.33</td>
<td>0.41</td>
</tr>
<tr>
<td>Clinical pregnancy</td>
<td>40.8%</td>
<td>41.9%</td>
<td>0.92</td>
</tr>
<tr>
<td>Live birth</td>
<td>33.3%</td>
<td>16.0%</td>
<td>0.12</td>
</tr>
<tr>
<td>Moderate-severe OHSS</td>
<td>1.9%</td>
<td>5.4%</td>
<td>0.56</td>
</tr>
</tbody>
</table>

- Basal FSH levels were higher in the agonist group (5.6 IU) than in the antagonist group (4.9 IU) (p=0.04).
- Similar results were obtained after stratifying for baseline FSH.
Implantation Rate was Higher in the GnRH Antagonist Group for PCOS Patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>GnRH agonist (n=32)</th>
<th>GnRH antagonist (n=20)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implantation rate</td>
<td>18%</td>
<td>47%</td>
<td>0.01</td>
</tr>
<tr>
<td>Clinical pregnancy</td>
<td>30%</td>
<td>50%</td>
<td>0.18</td>
</tr>
<tr>
<td>Live birth</td>
<td>23.3%</td>
<td>21.4%</td>
<td>&gt;0.99</td>
</tr>
</tbody>
</table>

- A subgroup analysis was performed on participants meeting National Institutes of Health (NIH) criteria for PCOS
- The clinical pregnancy rate was higher in the antagonist group with a trend towards significance

Summary and Conclusions

Summary
- A higher number of oocytes and MII oocytes were retrieved in the GnRH antagonist group
- In patients meeting the NIH criteria for PCOS, the implantation rate was higher in the GnRH antagonist group

Conclusions
- Better oocyte and embryo outcomes were obtained with the GnRH antagonist regimen than with the agonist regimen
- The antagonist protocol may bring extra benefits for women meeting NIH criteria for PCOS
Clinical Implications

- In 2008, it was stated that new studies were required to compare the benefits of the GnRH antagonist protocol and GnRH agonist in women with PCOS.¹
- Since then, some studies have reported higher pregnancy rates with the agonist protocol² but other studies reported similar outcomes with the agonist and antagonist regimens.³
- A recent meta-analysis reported similar outcomes between the agonist and antagonist regimens.⁴ However, a GnRH antagonist protocol may significantly reduce the rate of severe OHSS.⁴
- The present study confirms the efficacy of GnRH antagonist protocol in PCOS.


Poster Presentation:

P-623 – Comparison of standard GnRH antagonist protocol and luteal phase oestradiol/GnRH antagonist priming protocol in the poor responders

A Erdem

Poster presentation
Study Background, Methods and Aim

Background

• A consensus has not been reached on whether a luteal phase oestradiol/GnRH antagonist priming protocol may be beneficial for IVF compared with the standard GnRH antagonist protocol.

Methods

• 105 poor responders according to ESHRE Bologna criteria aged 25–45 years were included to the study.
• Patients were allocated either to the luteal phase oestradiol/GnRH antagonist priming protocol or to the standard GnRH antagonist protocol.
• Primary outcomes were the number of oocytes retrieved, clinical pregnancy, implantation, and cycle cancellation rates.

Aim

To compare IVF outcomes between standard GnRH antagonist protocol and luteal phase oestradiol/GnRH antagonist priming protocol in poor responders.

IVF Outcomes were Similar Between the GnRH Antagonist Group and the Luteal Oestradiol/GnRH Antagonist Priming Group

<table>
<thead>
<tr>
<th></th>
<th>GnRH antagonist</th>
<th>Luteal Oestradiol/GnRH antagonist</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrieved oocyte number</td>
<td>3.7</td>
<td>3.8</td>
<td>ns</td>
</tr>
<tr>
<td>Mature oocyte number</td>
<td>2.6</td>
<td>3</td>
<td>ns</td>
</tr>
<tr>
<td>Fertilization rates</td>
<td>61.1%</td>
<td>61.1%</td>
<td>ns</td>
</tr>
<tr>
<td>Transferred embryo number</td>
<td>1.6</td>
<td>1.7</td>
<td>ns</td>
</tr>
<tr>
<td>Implantation rates</td>
<td>8.4%</td>
<td>8.8%</td>
<td>ns</td>
</tr>
<tr>
<td>Ongoing pregnancy rates</td>
<td>9.4%</td>
<td>4.4%</td>
<td>ns</td>
</tr>
</tbody>
</table>

• The cancellation rate was also similar between the two groups.
Summary and Conclusions

Summary
- IVF outcomes were similar between the GnRH antagonist group and the luteal oestradiol/GnRH antagonist group

Conclusions
- The luteal oestradiol/GnRH antagonist protocol does not provide additional benefit compared to the GnRH antagonist alone protocol

Clinical Implications
- Luteal oestradiol pre-treatment has been associated with an increase in the number of oocytes retrieved, a lower cancellation rate and a slightly higher pregnancy rate.\(^1\)
- However the results of the current study are not concurrent with previous report, although this may be accounted for by study differences.\(^1\)
  - The study lead by Chang et al. had a very small sample size.
  - The protocol for administration of oestradiol varied between the two studies.
- Since both studies are retrospective; therefore, a randomised clinical trial may be warranted.

The Role of Anti-Müllerian Hormone Levels

O-242 – Do serum anti-Müllerian hormone levels correlate with pregnancy outcomes in patients with diminished ovarian reserve undergoing in vitro fertilisation?

N Pereira

Oral presentation
Study Background, Methods and Aim

Background
- Patients with serum markers of diminished ovarian reserve (DOR) have higher rates of embryonic aneuploidy and lower rates of clinical pregnancy.

Methods
- Patients (<35 years of age) undergoing IVF were divided according to their AMH levels: <1 or >1 ng/mL and <0.5 or >0.5 ng/mL.
- Implantation rate, clinical pregnancy, spontaneous abortion and live birth rates were compared between AMH sub-groups.

Aim
To investigate the correlation between pregnancy outcomes in patients <35 years of age with good quality embryos and serum AMH levels as a marker for DOR.

Baseline Demographics were Similar Between the AMH ≤1 ng/mL and AMH >1 ng/mL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AMH ≤1 ng/mL (n=451)</th>
<th>AMH &gt;1 ng/mL (n=554)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>32.1</td>
<td>31.9</td>
<td>0.30</td>
</tr>
<tr>
<td>Nulliparous (%)</td>
<td>48.6%</td>
<td>47.7%</td>
<td>0.77</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>23.1</td>
<td>23.5</td>
<td>0.29</td>
</tr>
<tr>
<td>Previous IVF attempts</td>
<td>1.09</td>
<td>1.04</td>
<td>0.18</td>
</tr>
<tr>
<td>Day 2/3 FSH (mIU/mL)</td>
<td>4.76</td>
<td>4.89</td>
<td>0.47</td>
</tr>
</tbody>
</table>
Controlled-Ovarian Stimulation Outcomes were Better in the AMH >1ng/mL Group

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AMH ≤1 ng/mL (n=451)</th>
<th>AMH &gt;1 ng/mL (n=554)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total stimulation days</td>
<td>9.72</td>
<td>9.60</td>
<td>0.36</td>
</tr>
<tr>
<td>Total gonadotropins administered (IU)</td>
<td>2517.1</td>
<td>1952.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>E2 on day of trigger pg/mL</td>
<td>1687.4</td>
<td>1890.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Peak endometrial stripe (mm)</td>
<td>11.4</td>
<td>11.3</td>
<td>0.54</td>
</tr>
<tr>
<td>Number of oocytes retrieved</td>
<td>9.40</td>
<td>13.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Number of mature oocytes</td>
<td>7.59</td>
<td>11.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ICSI</td>
<td>75%</td>
<td>72.4%</td>
<td>0.68</td>
</tr>
<tr>
<td>Fertilization rate</td>
<td>76.1%</td>
<td>74.8%</td>
<td>0.83</td>
</tr>
</tbody>
</table>

- Patients in the AMH >1ng/mL required less gonadotropins and had more oocytes retrieved

Pereira N. Session OR03-10. Presentation O-242

Pregnancy Outcomes Did Not Seem to Correlate with AMH Levels at ≤1 and >1 ng/ml

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AMH ≤1 ng/mL (n=451)</th>
<th>AMH &gt;1 ng/mL (n=554)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>32.1</td>
<td>31.9</td>
<td>0.30</td>
</tr>
<tr>
<td>Implantation rate</td>
<td>36.2%</td>
<td>39.1%</td>
<td>0.67</td>
</tr>
<tr>
<td>Clinical pregnancy rate</td>
<td>49.2%</td>
<td>50.2%</td>
<td>0.89</td>
</tr>
<tr>
<td>Spontaneous miscarriage rate</td>
<td>5.97%</td>
<td>6.86%</td>
<td>0.50</td>
</tr>
<tr>
<td>Live birth rate</td>
<td>43.2%</td>
<td>43.3%</td>
<td>0.99</td>
</tr>
</tbody>
</table>

- Adjusted odds for clinical pregnancy, spontaneous abortion, and live birth rates were 0.95 (95% CI; 0.54–1.65), 0.86 (95% CI; 0.28–2.68), and 0.97 (95% CI; 0.56–1.73), respectively

Pereira N. Session OR03-10. Presentation O-242
Baseline Demographics were Similar Between the AMH ≤0.5 ng/mL and AMH >0.5 ng/mL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AMH ≤0.5 ng/mL (n=101)</th>
<th>AMH &gt;0.5 ng/mL (n=904)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>32.2</td>
<td>32.0</td>
<td>0.53</td>
</tr>
<tr>
<td>Nulliparous (%)</td>
<td>53.6%</td>
<td>46%</td>
<td>0.16</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>22.8</td>
<td>23.1</td>
<td>0.62</td>
</tr>
<tr>
<td>Previous IVF attempts</td>
<td>1.08</td>
<td>1.06</td>
<td>0.77</td>
</tr>
<tr>
<td>Day 2/3 FSH (mIU/mL)</td>
<td>4.49</td>
<td>4.53</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Controlled-Ovarian Stimulation Outcomes were Better in the AMH >0.5 ng/mL Group

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AMH ≤0.5 ng/mL (n=101)</th>
<th>AMH &gt;0.5 ng/mL (n=904)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total stimulation days</td>
<td>10.2</td>
<td>9.92</td>
<td>0.26</td>
</tr>
<tr>
<td>Total gonadotropins</td>
<td>3328.2</td>
<td>2815.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>administered (IU)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E₂ on day of trigger (pg/mL)</td>
<td>1190.1</td>
<td>1595.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Peak endometrial stripe (mm)</td>
<td>11.1</td>
<td>11.3</td>
<td>0.47</td>
</tr>
<tr>
<td>Number of oocytes retrieved</td>
<td>7.81</td>
<td>11.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Number of mature oocytes</td>
<td>6.48</td>
<td>9.21</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ICSI</td>
<td>79.2%</td>
<td>79.5%</td>
<td>0.96</td>
</tr>
<tr>
<td>Fertilization rate</td>
<td>77.3%</td>
<td>75.5%</td>
<td>0.76</td>
</tr>
</tbody>
</table>

- Patients in the AMH >0.5 ng/mL required less gonadotropins and more oocytes were retrieved from these patients
Pregnancy Outcomes Did Not Seem to Correlate with AMH Levels at ≤0.5 and >0.5ng/ml

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AMH ≤0.5 ng/mL (n=101)</th>
<th>AMH &gt;0.5 ng/mL (n=904)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>32.2</td>
<td>32.0</td>
<td>0.53</td>
</tr>
<tr>
<td>Implantation rate</td>
<td>32.2%</td>
<td>40.1%</td>
<td>0.25</td>
</tr>
<tr>
<td>Clinical pregnancy rate</td>
<td>50%</td>
<td>52.2%</td>
<td>0.74</td>
</tr>
<tr>
<td>Spontaneous miscarriage rate</td>
<td>6.93%</td>
<td>7.63%</td>
<td>0.67</td>
</tr>
<tr>
<td>Live birth rate</td>
<td>43.6%</td>
<td>44.6%</td>
<td>0.89</td>
</tr>
</tbody>
</table>

- Adjusted odds for clinical pregnancy, spontaneous abortion, and live birth rates were 0.94 (95% CI; 0.54–1.63), 0.90 (95% CI; 0.31–2.62), and 0.96 (95% CI; 0.55–1.68), respectively.

Summary and Conclusions

Summary
- Controlled-ovarian stimulation outcomes (number of gonadotropins, E2 levels and oocyte field) were better when comparing AMH >1 ng/mL with AMH <1ng/mL and AMH >0.5 ng/mL group versus AMH <0.5ng/mL
- Pregnancy outcomes did not seem to correlate with AMH levels at either AMH level compare D

Conclusions
- In young patients, low AMH levels are associated with poor ovarian stimulation outcomes but low AMH levels cannot predict IVF pregnancy outcomes
Clinical Implications

- This study confirms previous reports that AMH levels can predict the response to ovarian stimulation and correlate with the number of oocytes retrieved in DOR patients.\(^1\)
- However, the predictive value of AMH levels in relation to pregnancy and live birth rates is not clear. Tal et al. reported that AMH level was a better predictor of pregnancy in women with DOR than with PCOS.\(^1\)
- Ovarian reserve tests are generally reported to have poor predictive value for pregnancy.\(^1\)–\(^3\)
- This study supports the view that AMH level is a valuable predictor of the number of oocytes retrieved after ovarian stimulation but not of reproductive outcomes.


P-35 – Can anti-Müllerian hormone (AMH) levels predict clinical pregnancy rates (CPR) in ovulation induction/intrauterine insemination (OI/IUI) cycles?

A Lange

Poster presentation
Study Background, Methods and Aim

Background

• AMH can be used to guide patient-specific treatment in assisted reproduction

Methods

• Data from 833 OI/IUI cycles (251 women) were analysed
• AMH levels were modelled in quartiles: 0.2–0.5, 0.6–1.6, 1.7–4.1, and 4.2–34.0 ng/mL for quartiles 1–4, respectively
• Clinical pregnancy rates were measured and adjusted for age, partner’s age, BMI, race, infertility diagnosis, and cycle type (FSH vs clomiphene citrate)

Aim

To evaluate the relationship between AMH levels and OI/IUI clinical outcomes.

There was no significant association between clinical pregnancy rate and AMH quartile

- There was also no significant association when the FSH and clomiphene cycles were analysed separately
After Adjusting for Potential Confounders, No Significant Association was Identified Between AMH Quartile and Clinical Pregnancy Rate

<table>
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<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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<td>Clinical pregnancy</td>
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• Cycle cancellation also did not correlate with AMH quartile

Summary and Conclusions

Summary
• After adjusting for potential confounders, no significant association was identified between AMH quartile and clinical pregnancy rate

Conclusions
• AMH does not seem to have a predictive value for clinical pregnancy outcome in OI/IUI cycles
Clinical Implications

- AMH levels are reported to have good predictive value for ovarian reserve and outcomes of ovarian stimulation (especially the number of oocytes retrieved).¹
- Conflicting results regarding clinical pregnancy and live birth predictions based on AMH levels have been reported.²
- Some studies suggest that patients with low AMH levels have lower rates of clinical pregnancy and live birth, while other studies have found that these outcomes are not correlated to AMH levels.³,⁴
- A recent study suggested that AMH could predict pregnancy in patients aged >36 years.⁵
- The results of the current study concur with ASRM presentation O-242 and support other studies suggesting that birth and clinical pregnancy rates are not correlated to AMH levels, particularly in OI/IUI cycles.

Summary: Ovarian Stimulation

Benefits of Growth Hormone in the Stimulation Regimen

- **Fernandez et al:** Treatment with hGH may lead to an improvement in euploidy, embryo quality and implantation by positively affecting follicular development and oocyte maturation

Follicular Stimulation Conditions

- **Pereira et al:** COS <13 days is associated with increased odds of pregnancy and live birth
- **Ubaldi et al:** The double stimulation approach may offer new treatment possibilities for patients with reduced ovarian reserve

Summary: Ovarian Stimulation

Priming Conditions

- **Clapp et al:** Better oocyte and embryo outcomes were obtained with the GnRH antagonist regimen than with the agonist regimen. The antagonist protocol may bring extra benefits for women meeting NIH criteria for PCOS
- **Erdem et al:** The oestradiol/GnRH antagonist protocol does not provide additional benefit compared with the GnRH antagonist protocol
**Summary: Ovarian Stimulation**

**The Predictive Value of Anti-AMH Levels**

- **Pereira et al:**
  In young patients, low AMH levels are associated with poor ovarian stimulation outcomes but AMH levels cannot predict IVF outcomes

- **Lange et al:**
  AMH does not seem to have a predictive value for clinical pregnancy in both FSH and clomidophrene citrate cycles in OI/IUI cycles