Do donor sperm characteristics influence the outcome of an artificial insemination treatment?

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Introduction

• Homologous insemination:
  → influence of age of the patient, sperm morphology and inseminating motile count (IMC)

• Donor insemination: data are scarce

Aim of the study

• Possible role of
  • Age of the patient
  • Donor sperm characteristics (IMC and morphology)

  on outcome after donor insemination
  • Pregnancy rate
  • Clinical pregnancy rate
Material & Methods

- Retrospective analysis (January 2005 - September 2009)
- Stimulation: Clomiphene-citrate protocol
- Sperm preparation
  - Frozen donor straws from Cryos, Denmark
  - Gradient centrifugation
  - Two washing steps
  - Determination of IMC and morphology (strict Tygerberg criteria)
- Outcome
  - Pregnancy rate (PR)
  - Clinical pregnancy rate (CPR)
- Statistics
  - Chi square test
  - ROC curve analysis
Results

Patient population
- 1223 cycles (289 women)
  - Hetero: 763 cycles (178 women)
  - Lesbian: 418 cycles (100 women)
  - Single: 42 cycles (11 women)
- 172 different donor samples

Outcome
- PR/cycle = 233/1223 → 19.1%
- CPR/cycle = 143/1192 → 11.9%
- Cumulative pregnancy rate after 4 cycles = 57.4%
- Multiple pregnancy rate = 6.9% (9 twins, 1 triplet)
- Mean number of cycles to obtain a pregnancy = 3.64
**Results**

**Age of the patient**
- Mean: 33.2 years (range 21-49)
- No predictive value for PR (p=0.61)

**IMC**
- Mean: $1.2 \times 10^6$ spermatozoa (range 0.021-26.8)
- No predictive value for PR (p=0.20)
Results

Donor sperm morphology

- Mean: 8.5% (range 0.5%-21.5%)
- 21 donors with unknown morphology
- Significant less pregnancies for donors with morphology ≤4% (p=0.031)

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Number of donors</th>
<th>PR</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 4%</td>
<td>21</td>
<td>11.3%</td>
</tr>
<tr>
<td>&gt; 4%</td>
<td>130</td>
<td>18.2%</td>
</tr>
</tbody>
</table>

- No predictive value for PR (p=0.27)
Discussion

• Age of the patient, sperm morphology and IMC have no predictive value for the outcome of a donor insemination
  
  age of patient = in contrast with other studies
  
  IMC = confirmation of other studies
  
  morphology= novel finding, to be investigated further
  
• In contrast with homologous insemination outcome
  
  Rigid medical screening of donors
  
  Selection of DNA intact spermatozoa by freeze-thawing

Conclusion

• Efficient treatment with good success rates for all age groups
• Further research
Thank you for your attention!!!