Realisaties van embryo onderzoek in België

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Usha Punjabi, UZ Antwerpen

FCE symposium, Brussel, 08/11/2013
DON'T USE ME FOR SPARE PARTS
BAN EMBRYO RESEARCH
embryoresearch.org

Public Information Meetings
Fri, 30th Sep, 4pm, Wynn's Hotel, Abbey St, Din 1
Mon, 2nd Oct, 8pm, Imperial Hotel, Cork

PICK ON SOMEONE YOUR OWN SIZE.
NO TO EMBRYO RESEARCH AND CLONING.

5 years in Liquid Nitrogen, then it's Helping Science, or the Dustbin...

Good: I've always been Pro-Choice.
Belgium: research on embryos: law since 11 May 2003

Federal Commission for medical and scientific research on Embryo’s *in vitro* (FCE) established and functional since 6 juni 2006
Projects 2003 - 2006

- Information was collected from all IVF centres regarding research carried out on embryo’s in vitro between 2003 – 2006
- No advice on these research projects by FCE
Broad areas of research carried out for projects 2003 – 2006 (n= 29)

- Genetic diagnosis: 27.6%
- Ovary biopsies: 6.9%
- Embryo implantation: 6.9%
- Embryo treatment: 6.9%
- Culture conditions: 6.9%
- Cryopreservation: 6.9%
- Oocyte maturation/activation: 17.2%
- Stem cells: 20.7%
Projects 2006 - 2012

Between 2006 – 2012 a total of 47 projects were submitted and discussed

3/47: continuations

Submitted proposals mainly from University centres:

- UZB: 15
- UZG: 11
- UZL: 13
- ULB: 5
- UZA: 3
- ULG: 1

Remarks:
- 1 study multicentric (3)
- 1 application from non-University IVF centre
47 projects submitted 2006-2012

- Positive: 70%
- Negative: 8.5%
- Not applicable: 19%
- Audit: 0%
Negative evaluation

- 4 projects:
  - Lack of scientific motivation (2)
  - Inappropriate IC (1)
  - Lack of local EC approval/non-university setting (1)

*Remark: only 1 was resubmitted and approved*

- Audit: no local EC approval/study started
Embryo Law: not applicable

9 projects:

- Using established and published protocols according to ESHRE guidelines
- For example:
  - Slow freezing vs. vitrification
  - Day 2 vs. day 5 transfer
  - Comparing culture media

*Remark*: Endpoint always pregnancies
Positive approval: 2006 – 2012 (n= 33)
Cell Stem Cell, 2011:
- Class 1: human development
- Class 2: embryonic stem cells
Type of embryos

- 2006-2007: mostly no estimation of embryos to be used
- 2008: estimation necessary
- 2009: estimation necessary (2 categories: created vs. supernumerary)
- 2010: estimation necessary according to 4 categories:

<table>
<thead>
<tr>
<th>Catégorie d'embryons</th>
<th>1ère année</th>
<th>2ème année</th>
<th>3ème année</th>
<th>4ème année</th>
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<tr>
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<td>1re jaar</td>
<td>2e jaar</td>
<td>3e jaar</td>
<td>4e jaar</td>
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<tr>
<td>Embryons frais créés pour la recherche</td>
<td>Enkelte (5 per gen)</td>
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<tr>
<td>Verse embryo’s gecreëerde voor het onderzoek</td>
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<tr>
<td>Embryons congelés créés pour la recherche</td>
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<tr>
<td>Ingevroren Embryo’s gecreëerde voor het onderzoek</td>
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<tr>
<td>Embryons frais surnuméraires</td>
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<tr>
<td>Verse en boventallige embryo’s</td>
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<tr>
<td>Embryons congelés surnuméraires</td>
<td>100</td>
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<td>100</td>
<td>100</td>
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<tr>
<td>Ingevroren en boventallige Embryo’s</td>
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<tr>
<td>Autres</td>
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<tr>
<td>Andere</td>
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</table>
Type of applied embryos

- Fresh supernumerary: inferior quality: not for embryo transfer or freezing
- Frozen supernumerary: good quality: childwish completed
- Created embryos: for specific research goals allowed
Research projects 2006 – 2012: type & number of embryos applied

- Fresh supernumery: 10,000
- Frozen supernumary: 1,000
- Fresh created for research: 2,000
- Frozen created for research: 1,000
- Others: 0
## Type of applied embryos

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<tr>
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</thead>
<tbody>
<tr>
<td>Fresh supernumerary</td>
<td>68%</td>
<td>70.0%</td>
</tr>
<tr>
<td>Frozen supernumerary</td>
<td>13%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Fresh created</td>
<td>18%</td>
<td>5.0%</td>
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</tbody>
</table>
# Type of embryos

<table>
<thead>
<tr>
<th>Type</th>
<th>Fresh Supernumerary (n) (% of total)</th>
<th>Frozen Supernumerary (n) (% of total)</th>
<th>Created (n) (% of total)</th>
<th>Others (n) (% of total)</th>
<th>% of total embryos</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC</td>
<td>6000 (58)</td>
<td>1139 (58)</td>
<td>340 (12)</td>
<td>0 (0)</td>
<td>49%</td>
</tr>
<tr>
<td>Culture Conditions</td>
<td>1580 (15)</td>
<td>0 (0)</td>
<td>0(0)</td>
<td>0 (0)</td>
<td>10%</td>
</tr>
<tr>
<td>IVM</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>680 (25)</td>
<td>0 (0)</td>
<td>4%</td>
</tr>
<tr>
<td>Genetic Analysis</td>
<td>1635 (16)</td>
<td>380 (19)</td>
<td>200 (7)</td>
<td>0 (0)</td>
<td>15%</td>
</tr>
<tr>
<td>Activation/embryo dev.</td>
<td>430 (4)</td>
<td>230 (12)</td>
<td>1000 (37)</td>
<td>0 (0)</td>
<td>11%</td>
</tr>
<tr>
<td>Cryo</td>
<td>690 (7)</td>
<td>210 (11)</td>
<td>522 (19)</td>
<td>266 (100)</td>
<td>11%</td>
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Research projects 2006 – 2012: applied vs. effectively used (n=13)
Type of embryos

- Worldwide availability of embryos / willingness to donate for research: not easy to map
- USA (2003): 400,000 embryos frozen: only 11,000 designated for research (3%)
- Belgium: 30,043 embryo’s frozen 788 designated for research (26.2%)
Belgium

Veerle Provoost:
Research projects 2006 – 2012
scientific work follow-up (n=13)
Tracking the progression of the human inner cell mass during embryonic stem cell derivation

Thomas O’Leary¹, Björn Heindryckx¹, Sylvie Lierman¹, David van Bruggen², Jelle J Goeman³,
Mado Vandewoestyne⁴, Dieter Deforce⁴, Susana M Chuva de Sousa Lopes²,⁵ & Petra De Sutter¹,⁵

Recurrent chromosomal abnormalities in human embryonic stem cells

Claudia Spits¹, Ileana Mateizeⁱ, Mieke Geens¹, Afroditi Mertzanidou¹, Catherine Staessen²,
Yves Vandeskelede², Josiane Van der Elst¹,³, Inge Liebaers¹,² & Karen Sermon¹
Conclusions

- FCE only decides over embryo research related to ‘experimental & investigational procedures’
- High approval rate
- Obligated approval from FCE did not change focus of research subjects
- Types of embryos:
  - Mostly fresh supernumerary embryos
  - Less frozen supernumerary embryos (reasons?)
  - More created embryos (reasons?)
  - Overestimation of some categories

~60% for ESC research
Conclusions

- Big differences in scientific output (still a lot ongoing...)
- Better follow-up necessary of scientific output:
  - Longer (publications take time)
  - Check content of the papers (related to proposal?)
  - Discussion warranted in the FCE about the final report
  - Give feedback to researchers?