Title: MALE FACTOR INFERTILITY: HAPLOID SPERM WITH CONDENSED MATURE CHROMATIN AFFECT PREGNANCY RATES IN COUPLES UNDERGOING ICSI
Objective: Percentage of haploid sperm with mature condensed chromatin may affect intracytoplasmic sperm injection (ICSI) outcome in patients with male factor infertility. Advanced female age may contribute to the oocyte quality and affect embryo development. Our objective was to assess this hypothesis as well as any possible contributing effect from female age.

Design: Prospective study

Materials and Methods: Semen samples were collected from 41 infertile partners of couples undergoing ICSI. None of the women had any female factors. An aliquot of semen was used for haploid sperm estimation by DNA cytometry assay. Sperm was labeled healthy if haploid sperm percentage was ≥ 25 % and unhealthy if haploid sperm was <25 %. Another aliquot of semen was used for ICSI procedure. Pregnancy test was done after 2 week from embryos transfer to the female partner.

Results: Based on the age of the female and the percentage of haploid spermatozoa, couples were grouped as: Group 1: Young female, age <32y, and high percentage of haploid sperm, and Group 2: females age >32y, and high percentage of haploid sperm, Group 3: Young female age <32, low percentage of haploid sperm, and Group 4: Older females, >32y, and low percentage of haploid sperm. Table 1 summarizes the pregnancy rate in each of the groups.

Pregnancy was higher in patients with high percentage of haploid sperm (p <0.01) vs. patients with lower percentage of haploid sperm. When female age was considered, the percentage of healthy spermatozoa with higher percentage of haploid spermatozoa resulted in higher pregnancy in women <32y (p < 0.01), while in women>32y, pregnancy rates were comparable between spermatozoa with high and low percentages of haploid sperm.

Table 1: Summary of pregnancy incidence in each group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Pregnancy incidence</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Pregnant (n, %)</td>
<td>Pregnant (n, %)</td>
</tr>
<tr>
<td>1</td>
<td>3/41 (7.3%)</td>
<td>8/41 (19.5%)</td>
</tr>
<tr>
<td>2</td>
<td>5/41 (12.2%)</td>
<td>8/ (19.5%)</td>
</tr>
<tr>
<td>3</td>
<td>10/41 (24.3%)</td>
<td>2/41 (4.8%)</td>
</tr>
<tr>
<td>4</td>
<td>4/41 (9.7%)</td>
<td>1/41 (2.4%)</td>
</tr>
</tbody>
</table>

Conclusions: In younger women (<32y), the percentage of haploid spermatozoa is critical in determining pregnancy in ICSI cases with male factor infertility. This effect is diminished with advanced female age as oocyte aging may further reduce pregnancy rates.

Support: None

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