INTRODUCTION
Infertility is the inability of a person, animal or plant to reproduce by natural means. In humans, infertility may describe a woman who is unable to conceive as well as being unable to carry a pregnancy to full term. There are many biological and other causes of infertility, including some that medical intervention can treat. Primary infertility is defined as when a woman is unable to ever bear a child, either due to the inability to become pregnant or the inability to carry a pregnancy to a live birth she would be classified as having primary infertility. Thus women whose pregnancy spontaneously miscarries, or whose pregnancy results in a still born child, without ever having had a live birth would present with primarily infertility. When a woman is unable to bear a child, either due to the inability to become pregnant or the inability to carry a pregnancy to a live birth following either a previous pregnancy or a previous ability to carry a pregnancy to a live birth, she would be classified as having secondary infertility. Male infertility is a great problem worldwide and there are indications based on reports from fertility treatment registers in several countries that this is on increase. There are many possible reasons for this increase and the most plausible cause could be the increasing exposure to environment factors that are an outcome of unregulated industrialization as well as lifestyle choices. Known causes of male infertility can be sperm production problem or blockage of sperm transport. Progress in the field of assisted reproduction, and particularly micromanipulation, now heralds a new era in the management of severe male factor infertility, not amenable to medical or surgical correction. By overcoming natural barriers to conception, in vitro fertilization and embryo transfer (IVF-ET), subzonal sperm insemination, partial zona dissection, MESA (microsurgical epididymal sperm aspiration), PESA (percutaneous epididymal sperm aspiration), TESA (testicular sperm aspiration) intracytoplasmic...

ABSTRACT
BACKGROUND: The aim of this object was to compare ICSI outcomes with the type of infertility. MATERIAL AND METHOD: we performed total of 250 IVF-ICSI cycles at Jaipur Fertility center, Jaipur Rajasthan. 187 participants were of primary infertility and 63 were of secondary infertility. The differences in the outcomes of ICSI were evaluated. The main outcome measures were fertilization rate, implantation rate, clinical pregnancy rate (CPR) and live birth rate (LBR). RESULTS: No significant differences were seen in fertilization rate, Implantation rate, clinical pregnancy rate and live birth rates with primary and secondary infertility. Fertilization rate was 72.02% and 74.33% in primary and secondary infertility respectively. Implantation rate for primary infertility patients was 18.76% and 22.88% for secondary infertility. CPR was 34.40% for primary and 33.71% for secondary infertility. LBR was 14.66% and 15.08% for primary and secondary infertility respectively. CONCLUSION: Type of infertility (primary and secondary)(non male factor) may affect the icsi outcomes.

Keywords: ICSI, in vitro fertilization, implantation, infertility.
Comparison Of Intracytoplasmic Sperm Injection (ICSI) Outcomes

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atic injection of sperm (ICSI) now offer couples considered irreversibly infertile, the option of parenting a genetically related child\(^3\). Assisted reproductive technology increases the pregnancy probability. There use is increasing in present as a treatment of male infertility. The outcome (fertilization rate, implantation rate, CRR, Live birth rate) of these procedures has been studied in association with type of infertility by many researchers\(^{[4,5,6,7,8]}\)and they found variable results. The Present study is an effort to find out association between different type of infertility and clinical outcomes.

MATERIAL AND METHOD

We performed total of 250 IVF-ICSI cycles at Jaipur Fertility center, Jaipur Rajasthan. 187 participants were of primary infertility and 63 were of secondary. The differences in the outcomes of ICSI were evaluated. The main outcome measures were fertilization rate, implantation rate, clinical pregnancy rate (CPR) and live birth rate(LBR).

Ejaculated semen samples were collected from patients. Patients with a testicular volume almost of 15 mL or greater underwent diagnostic PESA (percutaneous epididymal sperm aspiration). If no spermatozoon was found, TESE (testicular sperm aspiration) under the local or general anesthesia was performed. The sample was examined under magnification of × 400 in the microscope for the presence of sperm cells and density gradients were used in all cases to separate spermatozoa and spermatids. Ovarian stimulation is achieved after using a gonadotrophin releasing hormone antagonist, in association with recombinant human FSH. Ovulation is induced by the administration of 10,000 IU human chorionic gonadotrophin). Ultrasound monitoring done only to measure follicle size and follicle number. When at least three follicles of diameter ≥ 16 mm are observed and with 17β-oestradiol concentations corresponding to the number of follicles. Transvaginal, ultrasound-guided oocyte retrieval is performed 34–36 h later. On the same day, sperm retrieval was performed by PESA or TESE. After retrieval and preparation of of sperms(both ejaculated and retrieved), ICSI was performed on mature eggs. Fertilization was confirmed 24 hours later and embryo transfer was performed on day 3 of ovum pickup. The number of embryos transferred was 2 to 4 per cycle. Only high-quality embryos (grades Aand grade B) were transferred.

All the data were entered on Excel sheet M.S. Office Excel-2007 and analyzed statistically using SPSS Statistical software (ver.20) and XL- Stat. All the Outcome variables i.e quantitative data were summarized in the form of Mean ± SD. In normal distributed data ,the difference between mean value of the two groups were analyzed by student’s T Test, which were further analyzed by using Mann-Whitney Rank sum test for two groups.

RESULTS

Table: 1 Association of Fertilization Rate, Implantation Rate, clinical pregnancyrate (CPR) and Live birth rate with the Type of infertility

<table>
<thead>
<tr>
<th>Type of infertility</th>
<th>Fertilization Rate</th>
<th>Implantation Rate</th>
<th>CPR</th>
<th>Live birth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>N 187</td>
<td>187</td>
<td>187</td>
<td>187</td>
</tr>
<tr>
<td>Mean 72.02</td>
<td>18.76</td>
<td>34.40</td>
<td>14.66</td>
<td></td>
</tr>
<tr>
<td>SD 22.23</td>
<td>27.50</td>
<td>48.90</td>
<td>23.22</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>N 63</td>
<td>63</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Mean 74.33</td>
<td>22.88</td>
<td>35.71</td>
<td>15.08</td>
<td></td>
</tr>
<tr>
<td>SD 20.56</td>
<td>34.68</td>
<td>45.58</td>
<td>26.56</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>N 250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Mean 72.60</td>
<td>19.80</td>
<td>34.73</td>
<td>14.77</td>
<td></td>
</tr>
<tr>
<td>SD 21.81</td>
<td>29.45</td>
<td>48.00</td>
<td>24.05</td>
<td></td>
</tr>
<tr>
<td>P Value</td>
<td>.467</td>
<td>.550*</td>
<td>.629*</td>
<td>.976*</td>
</tr>
<tr>
<td>Significance</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

* Mann-Whitney Rank sum test

Discussion

Miscarriage was more in secondary infertility as compared to Primary
infertility (9.52% vs 5.9%) and Live birth was also more in secondary infertility as compared to Primary infertility (34.92% vs 32.1%)

Mostafa S. Mostafa et al (2014) compared the effect of postponing hCG injection till intrauterine insemination with current practice protocol, on pregnancy rate. The overall pregnancy rate in this study, following IUI was 9%. The pregnancy rate was 10% “5/50” in the study group (hCG after IUI), versus 8% “4/50” in the control group (hCG before IUI). However, this difference is not statistically significant. Fertilization rate was more in secondary infertility 74.33±20.56% as compared to primary infertility 72.02±22.23%. Implantation Rate was more in secondary infertility 22.88± 34.68% as compared to primary infertility 18.76±27.50%. CPR was also more in secondary infertility 35.71% and Live birth rate was more in secondary infertility 15.08% as compared to primary infertility. But no significant difference was observed according to type of infertility in all the rates.

Mahnaz Ashraf et al (2013) evaluated the relation between ICSI outcome and different causes of infertility. They found no association between different causes of infertility and clinical outcomes. Shi XY et al (2010) studied total of 149 cycles of IVF and ICSI, including 98 cycles in patients with primary infertility and 51 in those with secondary infertility. The fertilization failure rate of IVF was significantly higher in primary infertility group than in secondary infertility group (10.2% vs 3.9%, P<0.05). No fertilization failure occurred in ICSI group. The fertilization rates and good quality embryo rates in ICSI group were significant higher than those in IVF group, and the abnormal fertilization rate was significantly lower in ICSI group (P<0.05). No significant difference were found in the implantation rates, clinical pregnancy rates, delivery rates or the rates of birth defects of the offspring between IVF, ICSI and IVF+ICSI groups.

Esmailzadeh S et al (2005) found no significant difference in IVF outcomes in terms of infertility. Wael H Salem et al (2014) found there was no significant difference in implantation, clinical pregnancy and delivery or miscarriage rates in different infertility. Similar to our study to our study. Mahnaz Ashraf et al (2013) found no correlation of ICSI outcomes with type of infertility.

In present study no significant differences were seen in fertilization rate, Implantation rate, clinical pregnancy rate and live birth rates with primary and secondary infertility

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