Anastrazole is an Effective Treatment for Infertile Hyperestrogenemic Men
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Introduction

- Obesity is one of many modifiable factors known to have an effect on male fertility
- Increased adipose tissue harbors aromatase, which converts testosterone to estradiol and estrone
- Men with increased aromatase activity may experience hypogonadism in addition to hyperestrogenemia
- Elevated estradiol inhibits the hypothalamus-pituitary-gonadal axis, resulting in decreased LH and FSH secretion, and ultimately impaired steroidogenesis and spermatogenesis
- We investigated the effects of anastrazole, an aromatase inhibitor, on the semen profile of eugonatropic infertile men with hyperestrogenemia and no other male factor (varicocele, genetic abnormalities, exogenous hormone use).

Methods

- Inclusion criteria:
  - Abnormal semen analysis
  - Absolute (42pg/mL) or relatively (T:E2 < 10) elevated estradiol level
- Exclusion criteria:
  - Palpable varicocele
  - Hypergonadotrophic hypogonadism
  - Hormonally active pharmaceutical
  - Abnormal karyotype
  - Y chromosome microdeletion
- Data gathered:
  - Average testicular volume
  - BMI
  - Serum FSH, LH, T, E2
  - Semen parameters
- Aromatase Inhibitor (anastrozole) dosing:
  - 1mg three times/week

Results

<table>
<thead>
<tr>
<th>Lab</th>
<th>Pre Tx</th>
<th>Post Tx</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSH (mIU/mL)</td>
<td>5.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LH (mIU/mL)</td>
<td>5.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testosterone (ng/dL)</td>
<td>258.8</td>
<td>505.5</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Estradiol 17B (pg/mL)</td>
<td>39.27</td>
<td>17</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Testosterone:Estrogen</td>
<td>6.81</td>
<td>41.63</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>SA Volume (ml)</td>
<td>3.95</td>
<td>2.93</td>
<td>0.98</td>
</tr>
<tr>
<td>SA Sperm Concentration (10^6/mL)</td>
<td>12.49</td>
<td>15.3</td>
<td>0.07</td>
</tr>
<tr>
<td>SA Motility (%)</td>
<td>44.67</td>
<td>37.56</td>
<td>0.36</td>
</tr>
<tr>
<td>SA Progressive Motility (%)</td>
<td>28.35</td>
<td>27.28</td>
<td>0.12</td>
</tr>
<tr>
<td>SA Sperm Count (x10^6)</td>
<td>31.28</td>
<td>39.91</td>
<td>0.04</td>
</tr>
<tr>
<td>SA TPMS Count (x10^6)</td>
<td>7.74</td>
<td>13.38</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Discussion

- Hyperestrogenemia (either absolute or relative) impacts gonadotrophin and/or sperm production typically due to increased aromatase activity; thus, aromatase inhibitors often effective
- Decreased estradiol production allows for increased LH/FSH secretion and results in increased total testosterone, as well as sperm production
- Our experience has demonstrated the potential improvement in testosterone and total sperm count based on this premise.

Conclusions

- Men with abnormal semen parameters and low testosterone should be evaluated for hyperestrogenemia
- Anastrazole can significantly improve total testosterone serum levels, T:E ratio, and semen quality (sperm count, total motile sperm count).

References