ROLE OF INHIBIN B INDEXES IN THE EVALUATION OF MALE INFERTILITY

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Objective: Of the two inhibin subtypes identified, inhibin B has emerged as a novel marker for spermatogenesis. However, the precise relation between the inhibin and sperm disturbances and its role in evaluation of male infertility among the other available hormones is still unclear. Recently, there has been growing interest among the researchers to investigate the relationship between the indexes of inhibin and sperm parameters. In this study we evaluated the role of various hormones (inhibin, follicular stimulating hormone (FSH) and luteinizing hormone (LH)) and their indexes (inhibin/FSH and inhibin/ testosterone) in men presenting for male infertility evaluation.

Design: Prospective study

Materials and Methods: We included 75 patients with infertility problems (median duration of infertility-36 months; range 12-96 months; mean age 31.2 ± 7.5 yrs) and 12 controls (mean age 32.1 ± 8.8 yrs) with proven fertility. Patients with history of varicocele, cryptorchidism and inguinal hernia were included in the study. Semen analysis was performed according to the WHO guidelines and testicular volume assessed with Prader’s orchidometer. Serum levels of inhibin B (nanograms/L), LH (IU/L), FSH (IU/L), prolactin (mIU/L) and testosterone (nmol/L) was assessed. Inhibin B serum levels were measured by ELISA. Inhibin/FSH and inhibin/testosterone indexes were later calculated. Correlation analysis was performed using SAS statistical software.

Results: Inhibin B levels were significantly lower in patients compared to the controls (median inhibin B: 90 vs. 160, \( P = 0.008 \)). However, no such significance was observed in either inhibin B/FSH index (12.6 vs. 8.2; \( P = 0.4 \)) or inhibin B/testosterone index (6.8 vs. 7.6; \( P = 0.7 \)). Inhibin B showed a significant positive correlation with sperm parameters and testicular volume. FSH and LH showed a significant negative correlation with sperm parameters and testicular volume. Inhibin B/ FSH index also showed significant correlation with sperm parameters and testicular volume similar to inhibin B. However, inhibin B/ testosterone index correlations were not consistent (Table).

Relationship between the semen parameters and Inhibin indexes
<table>
<thead>
<tr>
<th>Variables</th>
<th>Inhibin B $r, P$</th>
<th>FSH $r, P$</th>
<th>LH $r, P$</th>
<th>Indexes</th>
<th>Inhibin B/FSH $r, P$</th>
<th>Inhibin B/Testosterone $r, P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rt. Testicular Volume</td>
<td>0.568, 0.0001</td>
<td>-0.331, 0.004</td>
<td>-0.25, 0.04</td>
<td>0.357, 0.0001</td>
<td>0.31, 0.001</td>
<td></td>
</tr>
<tr>
<td>Lt. Testicular Volume</td>
<td>0.525, 0.0001</td>
<td>-0.350, 0.002</td>
<td>-0.24, 0.048</td>
<td>0.345, 0.002</td>
<td>0.21, 0.07</td>
<td></td>
</tr>
<tr>
<td>Sperm Motility</td>
<td>0.355, 0.003</td>
<td>-0.2742, 0.024</td>
<td>-0.27, 0.032</td>
<td>0.34, 0.005</td>
<td>0.28, 0.02</td>
<td></td>
</tr>
<tr>
<td>Sperm Count</td>
<td>0.476, &lt;0.0001</td>
<td>-0.4025, 0.0007</td>
<td>-0.3447, 0.002</td>
<td>0.48, &lt;0.0001</td>
<td>0.37, 0.002</td>
<td></td>
</tr>
<tr>
<td>Morphology</td>
<td>0.342, 0.004</td>
<td>-0.296, 0.01</td>
<td>-0.282, 0.03</td>
<td>0.351, 0.003</td>
<td>0.31, 0.009</td>
<td></td>
</tr>
</tbody>
</table>

$r = $ Spearman rank correlation coefficient; $P < 0.05$ was significant.

Conclusion: We conclude that inhibin B and inhibin B/FSH index are more sensitive to changes in spermatogenesis than other available parameters and they can be potential marker for the evaluation of male infertility. The role of inhibin B/FSH index and inhibin B/testosterone index needs further evaluation. Support: None

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