PROLACTIN AND DEHYDROEPIANDOSTERONE (DHEA) IN NIGERIAN MALES

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SUMMARY
Objective: To evaluate the correlation between prolactin and dehydroepiandrosterone (DHEA) levels in men who were co-investigated with their wife for infertility.
Setting: Gynaecological Outpatient Clinic of the Lagos University Teaching Hospital (LUTH)
Subjects: Fifty two men who were co-investigated with their wives for infertility at the gynaecological outpatient clinic, Lagos University Teaching Hospital (LUTH) from July 2002 to July 2003, had their blood assayed for prolactin and dehydroepiandrosterone (DHEA).
Results: The mean prolactin level of 11.9±10.3ng/ml was within the laboratory normal limit but 28.6% of these men had concentration more than the laboratory high limit of normal of 15ng/ml. The mean DHEA level of 12.8±9.2ng/ml was not much different from the laboratory high limit of normal of 12.5ng/ml but 46.2% of them had levels greater than this laboratory high limit of normal. There was no correlation between prolactin, DHEA and body mass index.
Conclusion: The mean prolactin was within normal limit while the mean DHEA was just slightly higher than normal. No correlation between prolactin, DHEA and body mass index in the males.

Keywords: Prolactin, DHEA, infertility.

INTRODUCTION
Infertility is a common problem in our environment with 10% to 15% of couples having difficulty in conception after one year despite adequate unprotected sexual intercourse. In an infertile couple, the pathology is found solely in the male in about 30% of cases and in another 20%, both the male and female are abnormal, thus the male factor is at least partly responsible in about 50% of infertile couples (1-3). It has been shown that in oligospermic and azoospermic male partners of infertile couples, endocrinopathy was found in as many as 58.6% where abnormal serum levels of luteinizing hormone, follicle stimulating hormone, testosterone and prolactin were found. Elevated prolactin has been associated with male infertility (4). Hyperprolactinaemia in men has also been known to cause decreased libido and impotence (5).

Dehydroepiandrosterone (DHEA) is produced in adrenal cortex and to a lesser extent, gonads and serves as a precursor in testosterone and oestrogen synthesis and it contributes to the development of secondary sexual hair during adrenarche (6). Prolactin modulate adrenal androgen production such that the level of DHEA, testosterone and other androgens increase with elevation of plasma prolactin level such that prolactin correlate positively with DHEA, testosterone and other adrenal androgens (7,8,9,10,11).

Aging men has been associated with decrement of the circulating androgens of both gonadal and adrenal origin especially testosterone and dehydroepiandrosterone sulphate especially in the sixth and seventh decades of life (12). Hyperprolactinaemic induced hypogonadotropic hypogonadism may benefit from dopamine agonist like bromocriptine (4,13) while male partners with hypergonadotropic hypogonadism with normal prolactin level may benefit from the use of low dose clomiphene citrate, tamoxifen and superpotent gonadotrophin analogues (15,16).

PATIENTS AND METHODS
n = 52 (Fifty two) men who were co-investigated with their wives for infertility at the gynaecological outpatient clinic, Lagos University Teaching Hospital (LUTH) from July 2002 to July 2003 had their blood assayed for prolactin and dehydroepiandrosterone (DHEA). The blood samples were taken between 8am and 9am and separated, centrifuged and stored at –20°C for assay using
RESULTS

Table I: shows the characteristics of the men. The mean age was 39.3 ± 4.5 years, the mean weight was 81.5 ± 12.4 kg, the mean height was 1.75 ± 0.09 m and the mean body mass index was 28.7 ± 3.9.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean ± SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>39.3 ± 4.5</td>
<td>31 - 53</td>
</tr>
<tr>
<td>Weight (Kg)</td>
<td>81.5 ± 12.4</td>
<td>56 - 110</td>
</tr>
<tr>
<td>Height (meter)</td>
<td>1.75 ± 0.09</td>
<td>1.60</td>
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<tr>
<td>I.QO</td>
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Table II: shows the plasma level of prolactin and DHEA in the men. The mean prolactin level was 11.9 ± 10.3 ng/ml with 28.8% of them having values over 15ng/ml while the mean DHEA in them was 12.8 ± 9.2ng/ml with 46.2% having values over 12.5ng/ml.

Table III: shows the correlation between prolactin, DHEA and the body mass index.

### TABLE II: SERUM LEVELS OF PROLACTIN AND DEHYDROEPIANDROSTERONE (DHEA)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean ± SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prolactin level (ng/ml)</td>
<td>11.9 ± 10.3</td>
<td>2 - 50</td>
</tr>
<tr>
<td>DHEA level (ng/ml)</td>
<td>12.8 ± 9.2</td>
<td>2 - 44</td>
</tr>
<tr>
<td>Prolactin (ng/ml) &gt; 15, 15 (28.8%)</td>
<td>DHEA (ng/ml) &gt; 125, 24 (46.2%)</td>
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Table III: CORRELATION BETWEEN PROLACTIN, DHEA AND OTHER CHARACTERISTICS

<table>
<thead>
<tr>
<th>Comparison</th>
<th>R</th>
<th>Statistical Significance (P value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Prolactin and DHEA</td>
<td>0.01</td>
<td>0.393041</td>
</tr>
<tr>
<td>Between Body mass index and Prolactin</td>
<td>0.00</td>
<td>0.454274</td>
</tr>
<tr>
<td>Between Body mass index and DHEA</td>
<td>0.17</td>
<td>0.02304</td>
</tr>
</tbody>
</table>

DISCUSSION

The mean prolactin level of 11.9 ± 10.3ng/ml is within the laboratory normal limit but 28.8% of these men had concentration more than 15ng/ml which is the laboratory high limit of normal. The mean DHEA level of 12.8 ± 9.2ng/ml is not much different from the laboratory high limit of normal of 12.5ng/ml. However 46.2% of these men had DHEA level greater than the laboratory high limit of normal. The facts from this study shows that mean prolactin and DHEA levels in these men are generally within normal limit which is at disparity with the study showing as many as 58.8% of the men with oligospermia and azospermia had endocrinopathy. This may be due to the fact that the earlier study was restricted to those with abnormal sperm count as opposed to this study which is more broad based.

There was no correlation between prolactin, DHEA and body mass index. This may be due to the fact that the mean prolactin, DHEA and body were all generally within normal limits. There was however as strong correlation between the mean height and mean weight (R = 0.17, p value = 0.002304). This is not unexpected, as weight and height had been known to be inter-related.
REFERENCES