Reference values for external genitalia size and steroid hormone levels in female neonates.

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Introduction

Prenatal androgen exposure can lead to variable virilization of external female genitalia. The lack of a consensus definition of clitoromegaly makes its diagnosis difficult.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>61 fullterm</td>
<td>82 fullterm</td>
<td>69 preterm</td>
<td>69 preterm</td>
</tr>
</tbody>
</table>

The fact that only limited data are available on normal steroid levels in female neonates makes this cases more complicated to manage.

Method

We measured with a plastic caliper the clitoris (length, width) and the anogenital ratio for three-day-old female neonate born at a gestational age of 24 to 42 weeks. For neonates born after 35 gestational weeks the concentrations of nine steroids were analyzed by LC/MSMS.

Results

For the 420 full-term and 206 preterm female neonates included, the mean clitoris length is 3.7 mm (P95 = 6 mm), the mean clitoral width is 4 mm (P95 = 7 mm), and the mean anogenital ratio is 0.45 (P95 = 0.6). Clitoral size does not differ significantly between full-term and pre-term neonates.

The normal values in nmol/L for the main steroids are as follows:

<table>
<thead>
<tr>
<th>N=125</th>
<th>Testo</th>
<th>DHT</th>
<th>Delta4</th>
<th>17OH</th>
<th>21DF</th>
<th>11 OH</th>
<th>DOC</th>
<th>Cortico</th>
<th>DHEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>&lt;0.125</td>
<td>0.06</td>
<td>0.75</td>
<td>1.06</td>
<td>&lt;0.125</td>
<td>1.38</td>
<td>0.40</td>
<td>4.581</td>
<td>7.444</td>
</tr>
<tr>
<td>PS-P95</td>
<td>&lt;0.125</td>
<td>0.056</td>
<td>0.154</td>
<td>0.252</td>
<td>&lt;0.125</td>
<td>0.593</td>
<td>0.001</td>
<td>0.342</td>
<td>1.092</td>
</tr>
</tbody>
</table>

Testosterone (Testo), dihydrotestosterone (DHT), delta-4-androstenedione (Delta4 ), 17-hydroxyprogesterone (17OH), 21-deoxycortisol (21DF), 11-deoxycorticisol (11OH), deoxycorticosterone (DOC), corticosterone (Cortico), dihydroepiandrosterenedione (DHEA)

Conclusion

These results suggest:
1. a definition of clitoromegaly in full term neonates as a clitoris longer than 6-7 mm
2. an anogenital ratio greater than 0.6 is an indicator of possible in utero virilization

A set of reliable LC/MSMS-based reference values for steroid concentrations in female neonates are proposed

References

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