DOPPLER EVALUATION OF THE UTERINE ARTERY FOR THE DIAGNOSIS AND FOLLOW-UP OF PATIENTS WITH PRECOCIOUS PUBERTY

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Background

- Pelvic ultrasound is used for the diagnosis and follow-up of girls with precocious puberty (PP)
- During treatment some patients may persist with pubertal uterine and ovarian anatomy
- Estrogens decrease the resistance of the uterine arteries
- Doppler evaluation of these vessels could be a useful complementary exam to determine the effects of treatment in these patients

Objective

- To evaluate the usefulness of uterine artery Doppler analysis in the diagnosis and follow-up of girls with precocious puberty

Subjects and Methods

- 14 girls with central PP: breast Tanner stage II-V, <8 years, LH >6.0 IU/L after leuprolide stimulation test, >3.5 cm uterus length
- Treated with long acting triptorelin pamoate 22.5 mg, which lasts 6 months
- A single operator performed a pelvic ultrasound at the time of diagnosis (0), and after 6 and 12 months of analog therapy
- Measuring uterine size, ovarian volume and a Doppler analysis of the uterine arteries was performed
- Uterine blood flow velocity waveform categories: high resistance (lack of pubertal development) and low and/or intermediate resistance (active puberty)
- Doppler analysis was correlated with LH levels observed in these patients at time 0 and during treatment (triptorelin pamoate 22.5 mg.)

Results

- All patients received 1 dose of triptorelin at times 0 and 6 months, and completed 1 year of treatment
- Mean age at the beginning of treatment: 7.9 years ± 1.3 (4-8), and LH peak before treatment: 34.0 IU/L ± 23.0(8.6-91.0)

Table 1. Doppler analysis of uterine arteries during precocious puberty treatment with triptorelin pamoate 22.5 mg. and LH levels at times 0, 6 and 12 months

<table>
<thead>
<tr>
<th></th>
<th>Time 0</th>
<th>6 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Doppler High resistance N (%)</strong></td>
<td>2 of 12* (17%)</td>
<td>13 (93%)</td>
<td>14 (100%)</td>
</tr>
<tr>
<td><strong>Doppler Low/intermediate resistance N (%)</strong></td>
<td>10 of 12* (83%)</td>
<td>1 (7%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>LH IU/L ± SD</td>
<td>34.0 ± 23 (8.6-91)</td>
<td>2.2 ± 0.8 (0.7-3.7)</td>
<td>1.8 ± 1.0 (0.4-4)</td>
</tr>
</tbody>
</table>

* Two missing Doppler analysis due to technical difficulties

Conclusions

Uterine artery Doppler color analysis is a valuable complementary tool for the diagnosis and management of girls with central PP, with a good correlation with LH levels. Thus and may be useful for patients with this condition during LHRH analog treatment

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