Body Position and Obstructive Sleep Apnea in Eight to Twelve Month Old Infants

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Abstract:

Purpose: To determine the association between body position and obstructive sleep disordered breathing in 8 to 12 month old infants.

Methods: Eighty to Twelve Month Old Infants Eight to Twelve Month Old Infants

Results:

- AHI: The mean AHI was 17.50 (+/- 5.4), prone AHI (2.9 +/- 7.3), left lateral decubitus AHI (1.1 +/- 6.1), or the right lateral decubitus AHI (2.5 +/- 7.6).
- REM sleep: REM sleep was significantly worse in REM sleep (AHI 14.3 +/- 3.5), p<0.015.

Conclusion:

Obstructive sleep apnea in infants is manifested by snoring, retractions, paradoxical chest movements, enuresis, daytime behavioral problems and excessive sleepiness. The pathophysiology includes nocturnal hypoaxemia and hypopnea. The condition that has its highest prevalence during the pre-school years is most often due to adentogenic hyperplasia and can generally be reversed by surgical excision of the hypertrophied adenoid tissue. The effect of body position on pediatric obstructive sleep apnea has been previously studied in children 1-4 years of age 1-7. Our study is the first to study the effect of body position on sleep apnea in 8 to 12 month old infants.

Discussion:

Obstructive sleep apnea in infants is manifested by snoring, retractions, paradoxical chest movements, enuresis, daytime behavioral problems and excessive sleepiness. The pathophysiology includes nocturnal hypoaxemia and hypopnea. The condition that has its highest prevalence during the pre-school years is most often due to adentogenic hyperplasia and can generally be reversed by surgical excision of the hypertrophied adenoid tissue. The effect of body position on pediatric obstructive sleep apnea has been previously studied in children 1-4 years of age 1-7. Our study is the first to study the effect of body position on sleep apnea in 8 to 12 month old infants.

Figure 1. AHI by body position

- Mean AHI was calculated for the supine, non-supine, prone, left-lateral decubitus and right-lateral decubitus positions. The AHI was significantly different between the mean non-supine AHI (2.5 +/- 3.4), supine AHI (2.5 +/- 7.6), prone AHI (2.9 +/- 7.3), left lateral decubitus AHI (1.1 +/- 6.1), or the right lateral decubitus AHI (2.5 +/- 7.4).

Figure 2. AHI vs. Sleep Stage

- REM sleep was significantly worse in REM sleep (AHI 14.3 +/- 3.5), p<0.015.

Table:

<table>
<thead>
<tr>
<th>Position</th>
<th>AHI</th>
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<tbody>
<tr>
<td>Supine</td>
<td>17.50 (±5.4)</td>
</tr>
<tr>
<td>Prone</td>
<td>2.9 (±7.3)</td>
</tr>
<tr>
<td>Left</td>
<td>1.1 (±6.1)</td>
</tr>
<tr>
<td>Right</td>
<td>2.5 (±7.6)</td>
</tr>
<tr>
<td>REM</td>
<td>14.3 (±3.5)</td>
</tr>
</tbody>
</table>

References:

3. Cuhadaroglu et al observed no difference in the severity of OSA with different body positions in children with adenoid hypertrophy.
4. The current study is the first to study the effect of body position on sleep apnea in 8 to 12 month old infants.

Results:

- Mean Age: 9.5 months
- Gender: 46% Female, 54% Male
- REM sleep time: 30% (range 5% to 42%)
- Supine sleep time: 50%
- Patients with OSA (AHI > 1/Hour): 48%