Longitudinal Sleep Outcomes in Pierre Robin Sequence Infants Treated Conservatively

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INTRODUCTION

• The prevalence of Obstructive Sleep Apnea (OSA) in Pierre Robin Sequence infants (PRS) is reported in literature as 46 to 85%.

•Limited evidence regarding sleep outcomes of PRS infants treated conservatively (without surgery).

•Our goal is to examine outcomes in sleep architecture and respiratory parameters of PRS infants treated conservatively as a viable alternative to surgical intervention.

METHODS

· 13-year single institution retrospective study of 182 infants.

- Included 23 infants with PRS with a diagnostic PSG (PSG_1) at age < 6 months, and at least one follow-up polysomnogram (PSG_N).
- Excluded 159 PRS infants with a surgical intervention before or between studies or split night studies.

·Mixed model analysis was used to track developmental changes in sleep and respiratory parameters between both groups.

RESULTS

- Depicted in Tables 1, 2 and Figures 1,2.
- Age groups:
  - 0-3 months: 20 infants (mean age 0.8±0.6)
  - 3-6 months: 6 infants (mean age 4.4±0.3)
  - 6-12 months:21 infants (mean age 7.5±1.2)
  - > 12 months: 6 infants (mean age 17.7±3.1)

Treatment Modalities of 23 PRS infants included in study	
Supplemental Oxygen	13 (56%)
CPAP	1 (4%)
Conservative positioning	9 (39%)

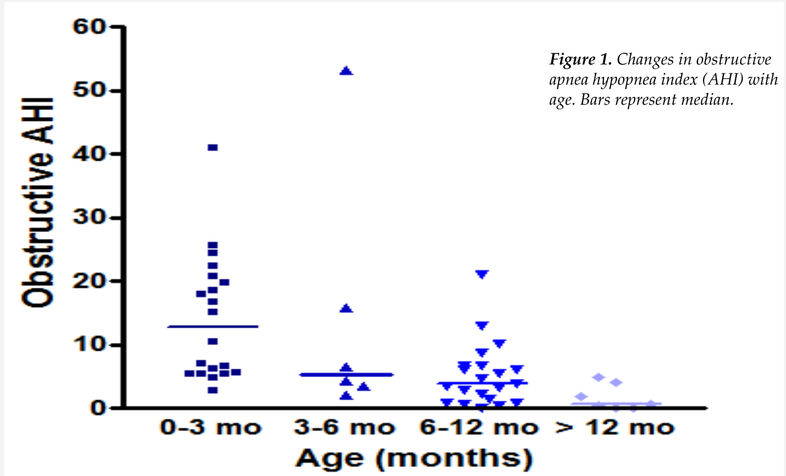

Figure 1. Changes in obstructive apnea hypopnea index (AHI) with age. Bars represent median.

Changes in respiratory parameters with age				
Parameter	0-3 mo	3-6 mo	6-12 mo	> 12mo
AHI (events/hr)	19.8	8.1	7.2	4.7*
OAHI (events/hr)	12.8	5.3	3.9*	1.2*
O_2 saturation (%)	83	82	82	86
Avg $ETCO_2$ (mmHg)	32	35	36*	40*
REM (%)	50	38*	31*	25*
NREM (%)	50	62*	69*	75*
Sleep Efficiency	69	79*	81*	84*
Arousal Index	27.2	18.3*	12.5*	11.8*

***Table 2.** Changes in respiratory parameters with age. AHI: total apnea hypopnea index; OAHI: obstructive apnea hypopnea index; O2: oxygen; Avg $ETCO_2$: average end tidal CO_2. REM: rapid eye movement sleep; NREM: non rapid eye movement sleep*

**** Indicates p<0.05 compared to baseline.***

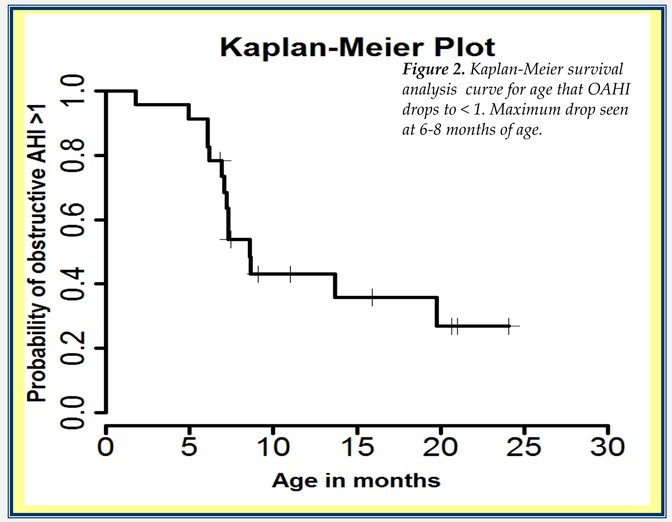

***Figure 2.** Kaplan-Meier survival analysis curve for age that OAHI drops to < 1. Maximum drop seen at 6-8 months of age.*

CONCLUSIONS

- PRS infants treated conservatively have considerable resolution of OSA during the first year of life without surgical intervention.
  - Maximum improvement seen at 6-8 months of age.
- Corresponding improvements in sleep efficiency and arousal index.
- Normal developmental changes in sleep architecture are observed.

Disclosures and References

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