Sleep Apnea & Orthodontic Care: A Pediatric Perspective

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OSA & Snoring in Kids

• Common, Differences from Adult OSA
• Spectrum of severity
  – UARS: upper airway resistance syndrome
    • Breathing-related micro-arousals
  – Chronic snoring, 3-12%
    • Nasal vs pharyngeal (tongue base)
  – Frank OSA “syndrome”, 1-3%
    • Gas exchange abnormalities
    • ~50% of apneic events assoc with EEG arousal

Risk Factors for OSA

• Enlarged tonsils +/- adenoids, +/- turbinates
• Other medical: Obesity, GERD, Seizures
• Muscle tone / strength abnormalities
  – Static: Hypo or Hypertonic
  – Progressive: Myopathies, Duchenne
• Craniofacial: A-P and Lateral dimensions
  – Mid-facial hypoplasia
  – Mandibular retrusion / micrognathia
  – High-arched palate, narrow mid-face

Maxillary Advancement

Consequences

– Cardio-respiratory:
  • Low O2, high CO2
  • Airflow limitation
– Neurobehavioral: Due to sleep fragmentation
  • Fatigue vs hyperactivity / ADD or ADHD-like
  • Morning headache
  • Moodiness / Irritability
  • Impaired Learning / Memory / Motor / Language
– Growth / Failure to Thrive
– Facial / Anatomic: “adenoid facies”
Clinical Evaluation

- History of clinical signs & symptoms
- Exam: Facies, Oropharynx, Habitus
- Rarely: Imaging, Lab work (ABG), EKG
- Nasendoscopy: site of obstruction
- Gold Standard: Laboratory Sleep Study
  - “Polysomnogram” (PSG): scoring criteria
  - Poor correlation: screening Qs & PSGs
- Home studies
- Autonomic Tools (PAT, PTT)

Treatment of OSA

- T &/or A, Turbinate reduction, Septoplasty
- Nasal Steroid, Allergen Elimination
- Treat GERD: sinusitis, airway edema
- (Weight Loss)
- CPAP / Bilevel PAP

Treatment of OSA

- Orthognathic surgery
- Tracheostomy (ultimate tx; rare!)
- Oral Appliances
  - (Adults, Older adolescents)
- Newer: Orthodontic—more research needed, mild OSA
  - Rapid Maxillary Expansion

Rapid Maxillary Expansion

Rapid Maxillary Expansion
Perioperative and Sedative Complications

- Age < 3 years
- Severe OSA on PSG (e.g. growth issues)
- Morbid Obesity
- Cardiopulmonary effects of OSA
  - HTN, pulmonary HTN, RVH, cor pulmonale
- Craniofacial dx
- Neuromuscular dx
- Ex-premies, more vulnerable

Thank You for my family’s smiles!