http://dx.doi.org/10.15331/jdsm.5998

AADSM News and Updates

Reported by Leila Chahine, DMD; Don Farquhar, DDS; James Hogg, DDS; Sheri Katz, DDS; Katherine Phillips, DDS; Kevin Postol, DDS; Thomas Schell, DDS; Rose Sheats, DMD; AADSM Staff

AADSM 25TH ANNIVERSARY MEETING JUNE 9–11, 2016

Selected Summary Notes

The AADSM annual meeting is an opportunity for members to obtain continuing education experience in a wide variety of topics. The following selected summaries are intended to provide a "taste" of the meeting offerings.

Educational Courses:
Introduction to Dental Sleep Medicine

Obstructive Sleep Apnea: Pathophysiology, Diagnosis and Co-Morbidities
Don Farquhar, DDS

Pathophysiology of obstructive sleep apnea was presented including classification of abnormal sleep, airway anatomy and physiology. The signs and symptoms of OSA were reviewed, with an emphasis on recognition of these in the dental practice. Cardiovascular, cognitive and hormonal co-morbidities and epidemiology were discussed. Polysomnography, home sleep testing, diagnosis and treatment options for OSA were reviewed.

Oral Appliance History, Types and Mechanism of Action
Katherine Phillips, DDS

This lecture reviewed the basic of oral appliances in order to allow the practitioner to feel more comfortable selecting an appropriate appliance for their patient. Topics reviewed included the history of oral appliances, Medicare's coverage of oral appliances, the importance of adherence to therapy and how appliance selection may impact this, the recently developed Definition of an Oral Appliance, and the pros and cons of the various appliance styles that are currently on the market. Specific patient situations were discussed in order for the practitioner to understand how thoroughly each patient must be evaluated in order to select an appliance that addresses their dental needs, while taking into consideration relevant medical history.

The New Patient: Examination, Determination of Candidacy, Impressions and Bite Registrations
Kevin Postol, DDS

Risk factors and signs of OSA were reviewed. Discussed how to determine which patients are good candidates for an oral appliance and what are the indications and contraindications of using an oral appliance. Then reviewed the new patient exam process and the treatment sequence including taking various different impressions and bite relationships and how to develop a relationship with your local physician through proper communication process

After Delivery: Titration, Follow-Up and Sequellae
Jim Hogg, DDS

The purpose of this introductory to DSM course was to enable the participant to work within the 2015 AAASM/AADSM Guidelines to properly manage their patients over a approximate 3 month period to manage their Sleep Disordered Breathing. After the clinician is confident that the subjective and objective (HST) goals have been reached that their patient would be sent back for a follow up OATS and then followed up on a 6 month and then yearly basis.

The course participants were introduced to possible complications of OAT therapy such as TMD pain and bite changes. they also were introduced to the various calibration techniques that could be utilized in their offices to access when to send their patient back to the sleep physician for objective testing of the MAD efficacy.

Educational Courses:
Advanced Dental Sleep Medicine

Cognitive-Behavioral Therapy—Treatment for Insomnia
Anne Bartolucci, PhD

Dr. Bartolucci described various forms of CBT, and how specifically it can be useful in the large population who suffering from Insomnia. She discussed the various presentations of insomnia and approaches to management. She gave thoughtful instruction of both new and classic approaches toward the treatment of insomnia. She helped to debunk some myths and old ideas that impede a better understanding and treatment of this important condition. Her talk was full of practical advice with many practical clinical pointers for dental sleep medicine providers.

Beyond the AHI-Outcomes that Matter to Patients—Quality of Life in Clinical Practice
Leslie Dort, DDS

Dr. Dort discussed quality of life statistics, questionnaires and their usefulness across the broad range of circumstances that affect providers, patients and even 3rd party payers in field of sleep apnea. She familiarized the audience with these measures for better understanding of their clinical and practical importance. This presentation helped to clarify a practical understanding of what we do and why we do it—effectively raising the bar for a broader perspective on outcomes of therapy.

Mean Disease Alleviation
Marc Braem, DDS
Dr. Braem described the differences in expectation and results as it applies among various populations in the treatment of OSA—caregivers, population at large, patients, government and 3rd party payers. He described how adherence may affect the measure of success working in combination with treatment effectiveness. This very important topic validates the use of OAT vs CPAP. Dr. Braem also discussed combinations of additional helpful therapies such as sleep position training (SPT) and surgery as means of achieving additional alleviation of disease. These concepts help to reinforce the use and reliability of these therapies in a broader population of potential successes.

Otolaryngology Advances in the Treatment of OSA
Ryan Soose, MD
Dr Soose discussed the challenges and new perspectives on surgical correction of crowded upper airways. He presented the latest ideas and techniques in both diagnosis and treatment of the surgical candidate. He provided both broad and specific suggestions for individualistic approaches toward surgical correction of this disease as opposed to the traditional 'cookie cutter' approach that has been applied over the last 35 years. The latest topics in this field included the use of drug induced sleep endoscopy (DISE), which provides a very useful approach to help individualize surgical technique, hypoglossal nerve stimulation, transpalatal advancement and expansion sphincter pharyngoplasty (ESP) which is a surgical technique based on phenotyping the patient as to their muscular and skeletal anatomy. Initial studies are showing an improvement over UPPP surgery.

General Sessions

Insights into the Pathogenesis and Management of OSA Utilizing Upper Airway Imaging
Keynote Speaker: ***Richard Schwab, MD***
Dr. Schwab elaborated on upper airway imaging studies demonstrating that the increased volume of upper airway soft tissue structures is an important risk factor for sleep apnea.

His take home messages included:

- The combination of increased upper airway soft tissue structures and reduced craniofacial skeleton increases OSA risk
- Tongue fat may explain the relationship between obesity and sleep apnea
- The metabolic activity of the tongue is reduced in apneics
- Upper airway anatomy in adolescents is more similar to young children than adults " therefore the initial therapy for adolescents with OSA would be adenotonsilectomy.
- His findings show that "weight loss decreases tongue fat and fat pad size," and
- CPAP increases the upper airway primarily in the lateral dimension by decreasing the lateral walls
- Examining the centroids of the soft palate and tongue will help to understand the mechanism of action of oral appliances
- We need to better understand the changes in upper airway anatomy that occur with upper airway surgery including hypoglossal nerve stimulation

A Look Back at 25 Years of Dental Sleep Medicine
Robert Rogers, DMD
Rob Rogers, while having assumed every imaginable role for the AADSM in the past, was an invited lecturer and gave us a fabulous and important recount of the development of dental sleep medicine. He reminded us of the pioneers in the field, namely Peter George, Charlie Samelson, Rosaline Cartwright, Alan Lowe, Wolfgang Schmidt-Nowara, and Tom Meade as our early researchers. Rob Rogers, Mary Beth Rogers, Michael Alvarez, Arthur Strauss, and Alan Lowe began the AADSM's predecessor as a study club. He reviewed the difficult, but successful path taken from having no research, no available training for dentists and skeptical medical colleagues, to the achievement of research worldwide, developing clinical protocol, the development educational programs, and the professional acceptance by medical colleagues.

Measuring Quality in the Treatment of OSA/Oral Appliances
Timothy Morgenthaler, MD
Dr. Morgenthaler asked the audience "Do you think you do a good job and how do you prove it?" The fact that dental care expenditures are declining will increasingly lead to an intensifying of competition and demands of legislation and patients to provide quality care. The Dental Quality Alliance report published by the ADA in 2012 raised the issue of quality care.

Quality care is safe, effective, patient-centered, timely, efficient and equitable. Challenges for quality measurement in dentistry include limited evidence-based guidelines—although dental sleep medicine is a leader in this area. There is limited knowledge of outcomes, limited diagnostic data collection to establish oral health benchmarks, limited information systems and limited information to claims data.

Measuring quality in healthcare involves structures, leadership, policies and governance. There will need to be some agreement upon processes of care and outcomes. He gave an example of how to measure quality using a continuous process of design, measure, analyze, improve, control and back to design.

Titration: Where to Start?
Ghizlane, Aarab, DDS, PhD
Dr. Aarab began with the premise that the efficacy of OAT is based on retention and adjustability of the appliance. With over 100 appliances that have FDA acceptance, including monoblocs and adjustable appliances, there are challenges to determining the optimal treatment position. Single night reporting presents challenges such as severity of OSA, nasal congestions, alcohol and medication that present night to night variability regarding resolution of AHI.

Titration can start at 50% to strike a balance between side effects and efficacy. Side-effects tend to be more frequent

with increased advancement. Dental changes are progressive in nature and the influence of design is not yet clear although increased vertical opening seems to have an adverse effect on outcome.

Recent studies suggest that contrary to popular thinking those with supine and REM dependent OSA are poor responders to OAT. Technologies using at home, over night remote titration will help to determine effective target titration. Phenotyping and pathogenesis of OSA are complex and require multiple approaches to result in the most effective outcomes over a diverse patient population.

Telemedicine
Steve Van Hout

Telemedicine is a rapidly growing modality to improve access to care for patients at a lower cost that can potentially improve patient outcomes. Telemedicine involves communication between the provider and patient either electronically via email, smartphones and other telecommunications technology, rather than in person. Providers can provide advice remotely and monitor their patients remotely as well, allowing for evaluation of adherence to treatment advice and medication use. There is a role for both the sleep physician and dentist in providing care to sleep patients via telemedicine. The AASM produced a position paper in 2015 specifically addressing this. Use of these technologies can improve communication with sleep physicians, allow dentists to screen and refer patients more easily and conduct thorough follow up with sleep patients utilizing oral appliance therapy.

Complementary and Alternative Therapies for Insomnia Disorder
Jennifer Martin, PhD

Dr. Martin discussed the issue that the public pays large amounts for products to help with insomnia that have no evidence and are not regulated. Not only are many alternative therapies for insomnia unregulated many herbal/natural products have safety concerns.

There are potential risks with Jamaican dogwood, kava kava, tryptophan and alcohol as treatments for insomnia. It is not known whether marijuana is better or safer than hypnotics. There is some evidence regarding the effectiveness of Tai chi, yoga and acupuncture.

Particularly positive results have been found using yoga for insomnia with post-menopausal women. Yoga has been found to help with insomnia more than omega 3's and a program of passive stretching. One of the limitations of yoga for insomnia is that it takes 12–16 weeks of yoga to produce a noticeable difference. Some studies show acupuncture in ear helps more than other areas. Difficult to evaluate acupuncture as the literature is too variable. Tai chi may be superior to some control interventions but not to CBT-I.

Midface Hypoplasia and Pediatric OSA: Causes, Correlations, and Orthodontic Interventions
Soleil Roberts, DMD, MSD

A brief overview of pediatric sleep disordered breathing was presented to summarize its pathophysiology, diagnosis, clinical features, and consequences. Clinical presentation of pediatric obstructive sleep apnea was classified into three types with a description of each. Type I = Adenoid Facies, Type II = Pickwickian phenotype, and Type III = Syndromic/Craniofacial.

Maxillary hypoplasia was described in all three planes of space: transverse, vertical, and anteroposterior. With the aid of clinical photographs and lateral cephalograms, specific findings were demonstrated in hard and soft tissues.

Normal growth and development of the craniofacial complex was described from birth to young adulthood. Etiologic factors that impede normal maxillary growth were discussed.

Several treatment options to manage pediatric sleep disordered breathing were presented with particular emphasis on orthodontic interceptive treatment to include rapid palatal expansion and maxillary protraction. Maxillary protraction included both non-surgical (facemask) and surgical (distraction osteogenesis).

Early collaboration among dental professionals, physicians, and other health care providers was encouraged to identify children at risk for OSA, to intervene in a timely manner, and to monitor the impact of treatment on maxillary growth and development.

Phenotyping and Oral Appliances: Towards Individualized Strategies to Optimize Treatment Success According to Underlying Mechanisms
Danny Eckert, PhD

Dr. Eckert described 4 key pathophysiological traits that contribute to the development of OSA: impaired anatomy, ineffective upper airway muscles during sleep, low arousal threshold and ventilator control instability (high loop gain).

Each of these traits can be a therapeutic target. Anatomical problems are present in 70% of those with OSA and can be addressed through CPAP, OAT, genioglossus muscle stimulation and surgery. Weight loss and positional therapy may also be helpful. Medications, such as ones that increase cholinergic effects may be helpful for ineffective airway muscle activity. Sedative medications may be developed to help with a low arousal threshold and control of loop gain may be possible through management of oxygen and carbon dioxide levels.

Dr. Ekert described the use of ultrasound tool to help determine muscle characteristics. Simplified phenotyping tools need to be developed to provide individualized treatment plans. Most treatment plans will likely involve more than one treatment for maximum effectiveness. A single intervention may treat 25% of patients and two will treat 50% of patients successfully.

Modified Oral Appliance and Combination Therapy
James Hogg, DDS and Katherine Phillips, DDS

Many patients are incompletely treated using a mandibular advancement device as the sole form of therapy. Options are needed to augment efficacy. Some of these options include utilizing the CPAP in conjunction with the oral appliance, modifying the oral appliance to become the interface for the CPAP, surgical treatment combined with the MAD, positional therapy combined with the MAD, weight loss combined with the MAD and potentially medicaments used in conjunction

with the MAD. All of these options have their pros and cons, and thorough patient evaluation is required to determine which adjunctive therapy would be most appropriate for your patient, and your clinical skill level. Modifying the oral appliance requires knowledge of modification techniques, as well as knowledge of CPAP therapy. It is important to maintain close communication with the treating physician, and understand that the factors that influence your patients' compliance with their therapy, combination or not, is the subjective improvement they feel while utilizing therapy.

Sleep Deprivation
David Dinges, PhD
Sleep debt is the cumulative hours of sleep loss with respect to a subject-specific daily need for sleep. Difficulties in determining the appropriate amount needed for adults was improved by an evidence-based Consensus Statement produced by the AASM and Sleep Research Society. Chronic sleep restriction can have significant health risks. Sleep deprivation can cause cognitive impairments, sustained attention problems, drowsy driving, cardiovascular and weight management issues. Appropriate sleep time should be incorporated into an individual's healthy lifestyle in order to reduce adverse health effects.

Is Insomnia History? The Modernization of Sleep
Roger Ekirch, PhD
Dr. Ekirch is an historian who has researched the history of sleep. He theorizes that middle of the night insomnia may, for many, be the emergence of the person's circadian rhythm ("an older, more normal pattern"). He gives many examples of evidence that people, in the absence of artificial light and the constructs of modern society, sleep by intervals. The causes of sleep consolidation are:

- Later Bedtimes
- Shifting Popular Attitudes
- Artificial Lighting
- The New Normalcy

He cites many references to "first" and/or "second sleep":

> "Even at night after their first sleep, they get up to eat and then they return to sleep."
> —André Thevet, *The Peculiarities of French Antarctica…* (Paris, 1878)

> "If no disease or accident intervene, they [children] will need no further repose than that obtained in their first sleep, which custom will have caused to terminate of itself, just at the usual hour. And then, if they turn upon the other ear to take a second nap, they will be taught to look upon it as an intemperance, not at all redounding to their credit."
> —"Time for Sleep," *Journal of Health*, I, no. 5 (Nov. 11, 1829), 75

AADSM 2016 EDUCATIONAL CALENDAR OF EVENTS

August 9–November 1
Fall Study Club Program
live, web-based seminars

September 17–18
Essentials of Dental Sleep Medicine Course
San Antonio, TX

October 22
Practical Demonstration Course
Darien, IL – AADSM National Office

Dental Sleep Medicine Staff Course
Lombard, IL

November 5–6
Advances in Dental Sleep Medicine Course
Nashville, TN

Essentials of Dental Sleep Medicine Course
Nashville, TN

December 3
Practical Demonstration Course
Darien, IL – AADSM National Office