A
esthesiology and Sleep Medicine have much information and many insights and ideas to share, both clinically and scientifically. Upper airway behavior provides an obvious example. Mastery in management of the “difficult airway” is one of the most fundamental skills in anesthesiology. Not surprisingly, these anatomically and functionally difficult airways are also problematic during sleep and have the keen attention of sleep physicians. At a more fundamental level, there is a growing interest in the shared neurobiology between the states of sleep and anesthesia, with now obvious common ground in the pathways involved in the unconsciousness of each state. Understanding these is leading to new insights into the mechanisms of anesthesia. In turn, anesthesia is providing a context in which to study the effects of unconsciousness on upper airway and other organ function which have implications for sleep. The postoperative period with its rich mixture of residual anesthesia effects, disturbed sleep, sedation and analgesia is a further example of the overlapping considerations between the states.

It is these and related issues that underlie creation of the Society of Anesthesia and Sleep Medicine. Last year Frances Chung and Terence Davidson organised a symposium on “Challenges in the Perioperative Management of OSA Patients” just before the San Diego American Society of Anesthesiology conference. It was the success of this meeting that provided the impetus to form this new society. A steering committee, a logo, a constitution, a website, a series of editorials and other correspondence, and much organisational work have followed. What is most gratifying and affirming is the fact that our growing membership has seen the point of all of this and has joined enthusiastically and purposefully.

We understand just how busy our members are. We are keen to create an environment where ideas and information are exchanged and clinical standards and scientific enquiry are enhanced. Involvement in these activities will be rewarding enough in itself. Some of you are also able to help on the organisation side of our activities and we welcome that. We are busy creating a committee structure and have concentrated to date on Board, Executive, Conference and Education committee (with its Abstract subcommittee), and Membership committee (with its Newsletter and Website subcommittees). These are taking shape. A Nominating committee, chaired by Peter Gay, has been formed. It is coordinating election of the first Board, which will be endorsed at the first Annual meeting of members on October 14 in Chicago, immediately following our upcoming symposium. The steering committee will step down at this point. The Conference and Education committee, chaired by Frances Chung, has been busy organising this year’s symposium. The program of the CME meeting is exciting and I really urge you to support the Society of Anesthesia and Sleep Medicine by attending the symposium. The Membership committee is being formed to take on responsibility for membership matters, so ably handled to date by its chair, Norman Bolden. We plan a Research committee to facilitate research efforts related to our field and a Clinical committee to work with other bodies to enhance clinical and training standards.

I am well aware of the talents that lie within our membership and want to help develop an atmosphere of inclusivity and involvement while avoiding imposing on individuals who want to participate without additional obligation. We are pleased with progress to date. The caliber of the members joining us ensures future success.

I am looking forward to meeting many of you in Chicago in October.

David Hillman
Chair
Steering Committee
The Society of Anesthesia and Sleep Medicine: Advancing the Science and Clinical Practice Common to Anesthesia and Sleep Medicine

The relationships between anesthesia and sleep are well known. This complex and clinically challenging aspect of patient care requires a multidisciplinary approach. It is not surprising that the American Board of Anesthesiology (ABA) in conjunction with the American Boards of Internal Medicine, Family Medicine, Otolaryngology, Pediatrics, and Psychiatry and Neurology has developed a Sleep Medicine Certification.

However, there is no collaborative approach to facilitate interaction between individuals with a common interest in sleep and anesthesia (e.g., anesthesiologists, sleep physicans, surgeons, emergency physicians, and basic scientists). This was the impetus for the formation of the Society of Anesthesia and Sleep Medicine (SASM) with the mission to promote interdisciplinary communication, education and research as well as advance excellence in patient care in areas common to anesthesia and sleep such as perioperative care of patients with sleep breathing disorders.

Please visit the SASM website at http://anesthesiaandsleep.org to obtain more information and consider becoming a member today! There are numerous membership benefits including reduced registration fees at SASM sponsored meetings, access to the latest information on the science and clinical practice related to anesthesia and sleep medicine through monographs and newsletter, and ability to network and collaborate with regional, national, and international colleagues on the cutting edge of science and practice in the areas common to anesthesia and sleep medicine, and obtain advice and counsel from other members regarding various practice paradigms.

The founding members of SASM have done much of initial groundwork and hope that many will choose to get involved in the Society’s activities. The first educational product of the Society was publication of a monograph on perioperative management of obstructive sleep apnea patients developed by experts in this clinically challenging area. The first annual meeting of SASM “OSA, Anesthesia, and Sleep The Common Ground” will be held on October 14, 2011 at Hilton Chicago, just before the annual meeting of the American Society of Anesthesiologists. In addition to obtaining cutting edge knowledge, the attendees will be able to appreciate 35 abstract presentations showcasing the latest research at this meeting.

It is our hope that the SASM Newsletter will be educational and provide you with discussion on the controversial aspects of anesthesia and sleep medicine as well as some information regarding Society matters including message from the President of the Society. I encourage you to submit an article for possible publication in this newsletter. Furthermore, any thoughts on the content of the newsletter are welcome. I look forward to seeing you at the SASM annual meeting in Chicago.

References

Rockville, MD: Agency for Healthcare Research and Quality. September 2010


Ensuring adequate sample size: Adjusted analyses require the presence of a minimum sample size to prevent model over-fitting and spurious results.

c. Is informed consent required? Waiver of informed consent is possible if the following criteria are satisfied:

i. The research involves no more than minimal risk to the subjects.

ii. The waiver or alteration will not adversely affect the rights and welfare of the subjects.

iii. The research could not practically be performed without the waiver or alteration.

iv. Whenever appropriate, the subjects will be provided with additional pertinent information after participation.

2. How can we build a robust registry with reliable data?
a. Defining the Study Population: Ensuring a clinically relevant proportion of surgical patients is represented in the registry data base.

b. Ensuring adequate sample size: Adjusted analyses require the presence of a minimum sample size to prevent model over-fitting and spurious results.

c. Defining Study End Points: It is essential to establish that the follow-up was obtained equally across comparison groups, and captures data of clinical importance.

d. Handling Missing Data: Missing data affects study validity by both reducing the information yield of the study and, in many cases, introducing bias. A structured plan needs to be in place to minimize the presence of missing data.

e. Ensuring Data Reliability: In order to prevent random or intentional errors, robust registry design should ensure adequate quality checks by reporting inter-rater reliability and re-abstraction rates. Registry data should be randomly selected for auditing on a predetermined basis to ensure data robustness, by comparing data with existing data sources.

In conclusion, although a Sleep Apnea Perioperative Outcomes Registry can provide critical information of value to clinicians, there are several steps to take to ensure that we have a dependable and robust database worthy of good quality outcomes research. The biggest strength of these studies will be the ability to explore topics traditionally considered unsuitable for prospective randomized trials in addition to generating hypothesis for more rigorous prospective analysis.

Keeping these fundamental tenets in mind, investigators at the University of Michigan are developing a Sleep Apnea Perioperative Outcomes Registry to collect uniform observational data and evaluate postoperative outcomes in patients with a suspected or known diagnosis of obstructive sleep apnea. If you are interested in learning more or being a part of this registry, you are welcomed to contact the author at rsatyak@med.umich.edu.

Melissa Punt, MD
Clinical Associate University of Chicago Department of Anesthesia and Critical Care

Is it realistic to screen patients for sleep apnea AND obtain polysomnography preoperatively? A case discussion highlighting the University of Chicago experience

A 69 year old man with osteoarthritis is evaluated for a total knee replacement, and scheduled for one week from today. He has several risk factors for obstructive sleep apnea (OSA) but has never had a sleep study.

Although many major academic medical centers and other large anesthesia practices have preoperative clinics to evaluate patients before the day of surgery, many smaller centers do not have this luxury. In clinics like ours, patients can be screened for OSA and undergo polysomnography (PSG) preoperatively. But is this realistic?

The University of Chicago Anesthesia Perioperative Medicine Clinic (APMC) has collaborated with the Department of Medicine and the Sleep Medicine Center to obtain preoperative PSG in all patients deemed at risk for OSA, to examine both its feasibility and possible benefit.

The resident discusses the patient with the clinic anesthesiologist, and preoperative planning includes referral to the Sleep Medicine Center for a preoperative PSG. The importance of an OSA diagnosis is discussed with the patient, who agrees to make an appointment with some reluctance, saying “I have survived other surgeries just fine without this sleep study.”

In 2009, our preoperative clinic began screening patients for OSA with the STOP-BANG questionnaire. In collaboration with the Sleep Center a requisition is faxed from the clinic and the patient is contacted by phone to arrange an appointment. The Sleep Center guarantees completion of a preoperative PSG for patients with a STOP-BANG score ≥ 3, and initiation of continuous positive airway pressure (CPAP) therapy if indicated, with an appointment made available within 3 days of referral if patients agree.

When the Sleep Center contacts the patient he refuses a PSG. The next day he calls the APMC and says he does not need “all of this unnecessary testing” before surgery. The short-and long-term risks of undiagnosed OSA are explained to him in detail, and after discussion with his surgeon, he is notified that anesthesia services will not be provided unless he has the appropriate testing before his elective procedure. The patient schedules his sleep study the next day.

Several logistical problems were identified while implementing and improving our preoperative OSA screening program. The most common is that patients simply do not comply with recommendation for polysomnography, despite open availability and ease of scheduling provided by our Sleep Center. Opinions also differed amongst clinic attending anesthesiologists as to when, and on whom, PSG should be performed. A key component involved sharing PSG data on our patient referrals with our providers.

When the Sleep Center contacts the patient he refuses a PSG. The next day he calls the APMC and says he does not need “all of this unnecessary testing” before surgery. The short-and long-term risks of undiagnosed OSA are explained to him in detail, and after discussion with his surgeon, he is notified that anesthesia services will not be provided unless he has the appropriate testing before his elective procedure. The patient schedules his sleep study the next day.

Several logistical problems were identified while implementing and improving our preoperative OSA screening program. The most common is that patients simply do not comply with recommendation for polysomnography, despite open availability and ease of scheduling provided by our Sleep Center. Opinions also differed amongst clinic attending anesthesiologists as to when, and on whom, PSG should be performed. A key component involved sharing PSG data on our patient referrals with our providers.
Once they saw that the majority of patients referred from the APMG met criteria for moderate-severe OSA and over 50% obtained APAP devices preoperatively, the providers realized the feasibility of this program. Education of attending anesthesiologists, residents, and physician assistants has led to greater compliance with screening recommendations. Frank Overdyk, MD, emphasizes his appreciation for the care provided by, and the persistence of, his perioperative team.

As of March 2011, 432 patients have been referred to the Sleep Center after being identified in the APMG as high risk for OSA. Of these, only 213 (49%) completed a PSG, in spite of unlimited access. Over half of patients with STOP-BANG scores ≥3, and the majority of those with STOP-BANG scores 5 and moderate-severe OSA, diagnosed by an apnea-hypopnea index greater than 15 during PSG (64% and 81% respectively, p < 0.005). Of all patients who completed polysomnograms, CPAP therapy was initiated during the initial sleep study for 54% with STOP-BANG score ≥3, and 71% with score ≥5. In addition, patients with STOP-BANG score ≥5 had higher body mass indices and apnea-hypopnea indices, and spent significantly more total sleep time with oxygen saturations <90% (Table 1). As our process has evolved, and based on data obtained from sleep studies over the past 2 years, only patients with STOP-BANG score ≥5 are now routinely referred for PSG.

In areas where PSG is not readily available, and patients are not routinely seen by an anesthesiologist before surgery, screening could be initiated in the surgeon’s or the primary physician’s office. Even screening on the day of surgery can identify those at high risk based on the STOP-BANG score alone. Then an anesthetic can be tailored to a patient with a high likelihood of having OSA, and CPAP therapy can be initiated postoperatively. Our data (Table 2) suggest that using STOP-BANG scores of 8-12cmH2O should be adequate for the majority of patients who require CPAP. Our patients could have been treated with this approach had he been unwilling to obtain the study. However, in-hospital postoperative CPAP does not provide the possible long-term health benefits of continued home CPAP therapy and follow-up with Sleep Medicine specialists.

Our practice for preoperative OSA screening implementation is as follows:

1. Screening for OSA is recommended with the STOP-BANG questionnaire, either during the preoperative anesthesiology, surgery, or primary care physician visit, including on the day of surgery.

2. STOP-BANG is a sensitive and relatively specific test (if a score of 5 is used as a cutoff for increased risk) that correlates well with PSG results.

3. Timely preoperative PSG and initiation of CPAP is a possibility for patients identified at high risk by screening.

4. Compliance is the main barrier because many patients will not complete PSG, even if recommended.

5. Alternatively, in high-risk patients identified by screening questionnaire but unable or unwilling to undergo preoperative PSG, a presumptive diagnosis can be made, an anesthetic plan can be tailored to the presumed diagnosis, and CPAP therapy can be initiated postoperatively (8-12 cm H2O), if necessary.

Table 1: PSG results grouped by STOP BANG score

<table>
<thead>
<tr>
<th>STOP-BANG Score</th>
<th>Score 3−</th>
<th>Score 4+</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mod-Ser OSA</td>
<td>64 (64%)</td>
<td>96 (81%)</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>AH1</td>
<td>25 (8-33)</td>
<td>38 (31-39)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>BMI</td>
<td>31 (25-35)</td>
<td>36 (19-53)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>STD% ≤ 90%</td>
<td>6 (0-6)</td>
<td>12 (1-20)</td>
<td>&lt; 0.03</td>
</tr>
</tbody>
</table>

Table 2: Final CPAP data grouped by STOP-BANG score

<table>
<thead>
<tr>
<th>STOP-BANG Score</th>
<th>Score 3−</th>
<th>Score 4+</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPAP Initiation</td>
<td>51 (54%)</td>
<td>85 (71%)</td>
<td>&lt; 0.03</td>
</tr>
<tr>
<td>Final CPAP (cm H2O)</td>
<td>8.6 (8-10)</td>
<td>9.1 (7-10)</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Total patients n = 94 n = 119

Means and interquartile ranges are reported for continuous data, number and % for categorical data.

References

Treasurer:
Peter Gay: Past-president of NAMDRIC and while acting as their advocate for patients with pulmonary and sleep problems, helped establish reimbursement for many current positive airway pressure therapies. He is an anesthesiologist and sleep physician. His clinical and research interests are centered on respiratory and upper airway physiology and their relationship to sleep disorders and anesthesia. He has published extensively in related areas. He is a Clinical Professor at the University of Western Australia, immediate past president of the Australasian Sleep Association, founding chair of Australia's Sleep Health Foundation and chairs the steering committee of the Society of Anesthesia and Sleep Medicine.

Executive Committee:
Norman Bolden, Frances Chung, David Hillman (chair), Peter Gay

Nominating Committee:
Norman Bolden, Peter Gay (chair), Ralph Lydic

Conference and Education Committee:
Frances Chung (chair), Peter Gay, Yandong Jiang, Roop Kaw, Shiroh Isono, Atul Malhotra, Babak Mokhlesi, Timothy Morgenhilder

Abstract Committee:
Frances Chung, Matthew Eikermann, Nabil Elkassabany, Bhargavi Gali, Peter Gay, Shiroh Isono, Yandong Jiang (chair), Suzanne Karon, Roop Kaw, Max Kelz, Ralph Lydic, George Mashour, Babak Mokhlesi, Mark Opp, Satya Krishna Ramachandran

6. Membership Committee: Dennis Auehley, Norman Bolden (chair (ex officio, as secretary), Matthew Chan, Frances Chung, Peter Gay, David Hillman, Roop Kaw, Girish Joshi, Babak Mokhlesi, Roman Schumann

7. Newsletter Subcommittee: Carolyn D’Ambrosio, Nik Gravenstein, Girish Joshi (chair), Satya Ramachandran, Roman Schumann, Jean Wong

8. Website Subcommittee: Norman Bolden (chair), J Laneec Lichtor, John Mitchell, Leopoldo Rodriguez

9. Finance Committee (same membership as executive committee): Norman Bolden, Frances Chung, Peter Gay ((treasurer) chair), David Hillman

10. Research Committee: tba

11. Clinical Committee: tba

President:
David Hillman head of the Department of Pulmonary Physiology and Sleep Medicine at Sir Charles Gardiner Hospital in Perth, Western Australia and director of the West Australian Sleep Disorders Research Institute. He is an anesthesiologist and sleep physician. His clinical and research interests are centered on respiratory and upper airway physiology and their relationship to sleep disorders and anesthesia. He has published extensively in related areas. He is a Clinical Professor at the University of Western Australia, immediate past president of the Australasian Sleep Association, founding chair of Australia's Sleep Health Foundation and chairs the steering committee of the Society of Anesthesia and Sleep Medicine.

President-Elect:
Frances Chung, MD Professor of Anesthesiology at University of Toronto and Medical Director, Ambulatory Surgical Unit, University Health Network. She is associate editor of Anesthesiology, Chair of Canadian Ambulatory Anesthesia Education and Research group and past president of Society for Ambulatory Anesthesia (SAMBA). Her research interest is in perioperative management of OSA. She developed the STOP-Bang questionnaire, a widely used OSA screening tool. Her research was recognized by multiple awards including Research Recognition Award from Canadian Anesthesiologist's Society and Distinguished Services Award from SAMBA. She is the vice-chair of the steering committee of Society of Anesthesia and Sleep Medicine and chair of SASM CME meeting.

Secretary:
Norman Bolden, MD Assistant Professor of Anesthesiology at Case Western Reserve University, Director of Obstetric Anesthesia, and Vice-Chairman of Anesthesiology at MetroHealth Medical Center. Dr. Bolden's research interests include perioperative complications in patients with Obstructive Sleep Apnea and anesthetic complications in obese parturients. Dr. Bolden is a member of the steering committee of the Society of Anesthesia and Sleep Medicine and has been serving in the capacity of Acting Secretary/Treasurer for SASM.

Treasurer:
Peter Gay: Past-president of NAMDRIC and while acting as their advocate for patients with pulmonary and sleep problems, helped establish reimbursement for many current positive airway pressure therapies. He is recent Past-Chair of the ACCP HomeCare Network and has been a member of several AASM committees and guideline authorship groups. He is the director of the ACCP January Sleep Review Course and has special interest in the use of novel equipment for the use of noninvasive ventilation treatment in patients with acute and chronic respiratory failure. He is the recipient of the Sepracor Achievement Award for Excellence in Pulmonary Disease Management.
Board of Directors (2 year commitment)

Babak Mokhlesi, MD: Associate Professor of Medicine and the director of the Sleep Disorders Center and Fellowship program at the University of Chicago Pritzker School of Medicine. During the last few years his research has focused on obstructive sleep apnea, especially in patients with obesity hypoventilation syndrome. He is also interested in perioperative outcomes of patients with sleep-disordered breathing. In addition to authoring several book chapters and articles, Dr. Mokhlesi sits on the editorial board of Chest. And the Proceedings of the American Thoracic Society and is a reviewer for the journals Amer J Reap Crit Care Med, Sleep, and the J Clin Sleep Med.

Ralph Lydic, PhD: Bert La Du Professor of Anesthesiology, Professor of Molecular and Integrative Physiology, and Associate Chair for Anesthesia Research at the University of Michigan. The goals of Lydic's research program are to elucidate the neurochemical and signal transduction processes by which sleep, opioids, and anesthetics depress breathing and arousal. The evolutionary perspective supports the view that neurons generating sleep and wakefulness preferentially modulate the ability of opioids, hypnotics, and anesthetics to obtund wakefulness.

Roop Kaw, MD: Associate Professor with the Cleveland Clinic Lerner College of Medicine and holds joint appointments with the Departments of Hospital Medicine and Outcomes Research (Anesthesiology Institute). His research focuses on novel predictors of cardiopulmonary risk in patients undergoing Cardiac and Non-cardiac surgery. He directs the Research Committee with the Department of Hospital Medicine and is a member of Outcomes Research consortium, anesthesia’s largest international academic research organization. He has been funded by the NINDS (NIH) for studying the incremental risk of Sleep Apnea in cardiac surgical patients. Dr. Kaw has published more than 30 scientific papers as well as presented more than 50 scientific abstracts nationally and internationally.
OSA, Anesthesia and Sleep
The Common Ground Conference

CONFERENCE DESCRIPTION
This conference, presented by The Society of Anesthesia and Sleep Medicine (SASM) and The University of Chicago, has been developed as an educational opportunity to present and discuss the basic and more controversial areas of sleep apnea and anesthesia.

The objective of this meeting is to provide a forum for discussions pertaining to the common grounds between obstructive sleep apnea, sleep and anesthesia. The goal is to promote excellence in medical care, research and education in anesthesia, sleep medicine, and perioperative medicine.

LEARNING OBJECTIVES
Upon completion of this activity, participants will be able to:

• Review the shared pathogenetic mechanisms of increased upper airway collapsibility during anesthesia and sleep;
• Interpret the neurophysiological correlates of loss of consciousness, unconsciousness and recovery of consciousness under general anesthesia;
• Determine the perioperative management in adenotonsillectomy in a child with OSA;
• Formulate how to implement screening for OSA in a Preoperative Clinic;
• Analyze the evidence of postoperative complications of OSA patients in medical literature;
• Determine which postoperative patients with OSA need monitoring;
• Formulate algorithms for the perioperative management of OSA patients;
• Appraise the impact of sleep apnea and episodic hypoxemia on ventilatory control and hemodynamics;
• Review the influence of opioids, anesthetics and their interaction on the control of breathing;
• Determine that recognition and treatment of obesity hypoventilation syndrome in the perioperative period can potentially reduce complications;

Please join us for what promises to be an informative and thought-provoking conference!