OASIS

Newsletter of the Ophthalmic Anesthesia Society

OPHTHALMIC ANESTHESIA SOCIETY

HIGH QUALITY ANESTHESIA CARE THROUGH TRAINING & EDUCATION

SUMMER 2009

PRESIDENTS MESSAGE

Dear OAS members,

Summer is fading and our annual meeting is rapidly approaching. There is an excellent line up of guest and in-house speakers for this years meeting. As requested by many, we will have additional interactive sessions with plenty of time for audience input. One of these sessions will deal with challenging cases which have been sent in to the OAS blog, and the other with ways in which to make our practices and surgery centers run more efficiently and cost effectively. A highlight of this years meeting will be Gary Fanning's delivery of the first annual Hustead memorial lecture.

The annual meeting is the heart of the OAS, both in terms of educational value and for the priceless interaction with our colleagues which it affords. If you have not done so, please register today, and bring some new colleagues with you. Plan also to attend the special reception at the International Museum of Surgical Sciences on Saturday night.

Chicago should be beautiful in mid September and I look forward to seeing you there.

David D. Markoff
Mountain Eye Associates
Clyde NC

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MEMBER SPOTLIGHT

Specialty Surgical Center
Beverly Hills, CA
Dean B. Berkus MD

A chance encounter can change your life. I first learned of OAS when my wife and I were in Chicago staying at the Conrad for the ASA annual convention. As I approached the elevator in my hotel, I encountered Steven Gayer, MD, who invited me to an OAS meeting being held in that very hotel. My general anesthesiology practice had evolved over the years into an ophthalmology-focused practiced, and this seemed like just the thing. I sat in on one meeting and made the decision, then and there, that this was an organization I needed to join.
It was one of the best decisions I've ever made, being a part of an organization emphasizing education, camaraderie and collaboration among practitioners of ophthalmic anesthesia, my new passion. The following year I went back to Chicago, this time attending the meeting to take in all the education and networking it had to offer. I purchased Robert Hustead, MD's book which has been helpful in my practice on anatomy and ophthalmic regional anesthesia.

Specialty Surgical Center came into existence about 11 years ago, born of the efforts of two far-sighted (there is a pun in here somewhere) individuals, an orthopedic surgeon and an accountant – a useful combination in today's world. The surgeon recruited local doctors with busy practices and promised among other things a quality surgical center in which to bring cases. The accountant became the chief administrator of the surgical center. The two have left our organization recently when Symbion Healthcare came on board.

SSC is located in Beverly Hills, at the corner of Bedford and Brighton, where the main office still resides. Patients often enjoy the facility's proximity (just a few blocks) to the famed Rodeo Drive's collection of shops, restaurants, and paparazzi in search of movie stars. (Not infrequently their searches are successful.)

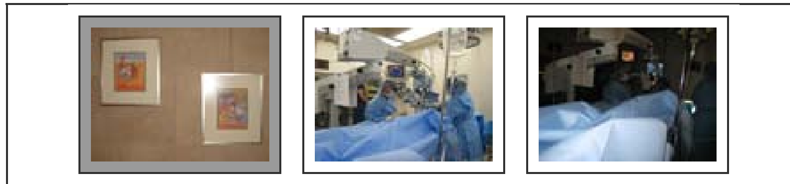
Together these two men succeeded in attracting some of the area's busiest and most capable doctors. Overflowing with talent, the Center grew dramatically, eventually expanding its facilities from one office to six, and becoming one of the busiest, most prominent surgical centers in the United States. Certainly its team of physicians is second to none – a source of pride for all of us.

My own headquarters are located in the Beverly Hills office, the very site where the SSC began as an outpatient facility performing general surgery, ophthalmic surgery, orthopedic surgery, pain management and endoscopies. And I'm delighted to say that our ophthalmologic practice has grown to the point that the Beverly Hills office now focuses exclusively on ophthalmology. The other specialties have moved 1½ miles down Wilshire Boulevard into the new main offices.

Specialty Surgical Center even though recently partnered with the national Symbion Corporation of out patient surgical centers maintains a very warm and friendly non-threatening, yet professional atmosphere through all its changes.

Among the features that first drew me to SSC was its willingness to notice and take advantage of talent. For example, a nurse who started out as the practice's fifth employee, Vickie Arjoyan, RN, demonstrated such energy and competence that she was eventually named administrator and director of nursing of SSC Brighton. Another significant figure in the practice, our Medical Director, Dr. John Hofbauer, was one of our original partners. Before the inception of SSC, his ophthalmology practice was located literally right across the street from where our Beverly Hills office now stands and he has used the surgical center through all its incarnations.

When you walk into the facility from the main door on Brighton Way it is warm and friendly not cold and austere. There are two original paintings I commissioned hanging in the lobby and patient family waiting area done by a local artist, Ben Goldman. They are the artist's impressions of his cataract surgeries: "Behold! Through the eye of a patient (Left & Right)."



Thumbnail panels: 1 2 3 4

My Gallery: Image (1 of 11)

The surgical center maintains high standards of accreditation as well as maintaining high quality equipment and caring highly competent staff. The staffing is our strongest asset as each member is internally motivated to help out where he can when someone is in need. Some of the RNs who man the preop and post operative areas have cross trained to work in the ORs. The front office staff utilize computer programs so that they can efficiently schedule patients in surgeons block times and archive the medical records. The ORs have the latest Zeiss Lumera microscopes and each microscope has a 3 chip through the lens camera system with a flat screen monitor visible by everyone in the OR. This is important so that everyone anticipates the next step and can participate in the surgery.

I was recruited by the medical director to be the chief of anesthesia some 6 years ago when the new SSC Wilshire was opened, necessitating a friendly rift in the anesthesia staffing. I had been rotating at the Wilshire and Encino facilities with other anesthesiologists from a local hospital. On a few occasions they tried to have CRNA coverage but the standard in the community is MD anesthesiology and for whatever reasons it didn't work out. At present our little center takes care of 300 to 350 patients per month. Our website is: **http://www.specialtysurgical.com/**.

At the beginning of the year Larry Paterson, MD, who is chief medical editor of Ophthalmology Management came to interview Sam Masket, MD, who is one of our surgeons. He wrote an article that also spotlighted our center: **http://www.ophthalmologymanagement.com/article.aspx?article=102788**. Members interested might want to follow the above URL.

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The 10th Annual Scientific Meeting of the British Ophthalmic Anesthesia Society

June 18 – 19th, 2009
Manchester, England
Manchester Conference Center

Manchester is well-known as the first city of the Industrial Revolution and the municipality where the British unlocked the means to harness the power of the atom. It is also renowned for the Manchester United Soccer Club. The 10th Annual Scientific Meeting of the British Ophthalmic Anesthesia Society was held in the city's center in an area that was demolished by the IRA back in 1996. Since that time the quarter has been re-built and is an interesting mix of 18th, 19th, and 20th century architecture. The program focused on a number of important issues in Ophthalmic Anesthesia and Surgery, but also looked at wider issues that are of interest in current anesthesia and medical practice. Attendees came from all over the world; United Kingdom, France, United States, Switzerland, Brazil, Chile, Russia and many other locations. It was truly an International group of speakers and audience participants.

Dr. Hamish McClure opened the first session with a discussion on means of assessing the quality of Ophthalmic Anesthesia blocks. He delineated several scoring systems which all offered a reasonably pragmatic approach for everyday use, however pointed out that such methods of assessment were inadequate for research purposes where greater discrimination is required.

Dr. Keith Allman followed with a presentation on advances in sub-tenon's anesthesia. He aired a fascinating video on tricord canula blunt tipped sub-tenon's blocks which he termed a minimally invasive incision lists sub-tenon's anesthetic. He also reviewed four clinical trials on the use of articane, a local anesthetic agent used mainly in dentistry, for application in ophthalmic anesthesia.

Dr. Malachy Columb from the University College of Dugland followed with a scientific presentation on therapy and toxicity of local anesthetics. Of particular interest was his review of an article by Schulenburg, et al in which the minimal local analgesic concentration model for ophthalmic anesthesia, also known as the up down process, was used. They were able to quantify volume sparing effects with the use of hyaluronidase.

Professor Brian Pollard from the University of Manchester was next with a fascinating talk of awareness and recall during anesthesia. He delineated an extensive differential diagnosis of intra- operative awareness. Most humorously he distinguished the difference between recall with pain and recall with litigation!

Dr. Jacques Ripart, Professor of Anesthesia in Intensive Care and Head of the Department of Anesthesia in Pain at the GROUPE Hospitalier Universite Caremeau in Nims, France gave a pair of lectures. The first was on the use of Xenon Anesthesia for general anesthesia for ophthalmic surgery cases. Of note, Dr. Ripart was the first person to use Xenon based anesthesia in France almost 2 years ago. He also discussed, in a separate talk, the role of the anesthetist in ophthalmic surgery from the French point of view. He quoted a few papers including one by Sherwood, et al who in essence stated that ophthalmologists should not be distracted by patients' pain and comfort needs, he also discussed Stuppt, et al's paper from 2007 that quite pointedly stated that "small problems do not become large problems when one has an anesthesiologist present in the operating

room for ophthalmic surgery". Finally, he cited Haddad's oft quoted editorial, "Airplanes rarely crash therefore we don't need pilots anymore".

Mr. Niall Patten consultant ophthalmologist at Manchester Royal Eye Hospital discussed recent advances in vitreo-retinal surgery followed by Dr. K.L. Kong who reviewed the anesthesia implications of said surgery. Dr. Daniel Conway and Mr. Brian Leatherbarrow presented a pair of lectures on "Ocular-plastic Surgery and Optimal choices of anesthesia for Ocular-plastic Surgery".

Dr. Ralph James Mackinnon, Jonathan Lord and Mr. Chris Lloyd presented three lectures on "Pediatric Ophthalmic Anesthesia". Dr. Mackinnon described regional efforts for simulation programs related to pediatric anesthetic emergency training simulation programs. Mr. Chris Lloyd discussed advances in cataract surgery in infants and children while Jonathan Lord from Moorfields Eye Hospital discussed examinations under anesthesia for Pediatric patients with Glaucoma. Because of concerns with alteration of intra-ocular pressure by inhalational agents, he and his colleagues have recently switched to IV induction with Ketamine for examinations under anesthesia for such children. This varies quite distinctly from the general philosophy in the U.S. of sparing the child (and parent) stress and place the IV after inhalation induction of anesthesia.

Mr. Tom Eke a Glaucoma and Anterior Segment surgeon discussed anesthesia implications of glaucoma as well as optimal techniques for anesthetics for adult patients with increased intra-ocular pressure. He also showed an enlightening video of face to face upright seated position for cataract surgery on patients who are unable to lie flat.

The sessions were closed out by discussion of visual perceptions during vitro-retinal surgery presented by Dr. Shashi Vohra. A draft of a position paper for consideration by Dr. Steven Mather and Sandra Kumar on the use of anticoagulants and anti platelets agents for patients about to undergo cataract surgery was presented and discussion ensued on this evolving topic.

One of the more fascinating aspects of this meeting was the brief presentations given by international ophthalmic anesthesia experts. Dr. Geraldo Carneiro from the Ophthalmology Department and Department of Anesthesia at the Federal University of Goias in Brasil presented a paper comparing the needle course and anesthetic solution dispurtion of agents given in either intraconal or extraconal fashion viewed with real time CT scanning. In their study they found that regardless of intent all blocked needles penetrated the cone and were thus intraconal. Dr. Peres Bota from the Department of Anesthesia and Intensive Care at Claude Hurez University Hospital in Lille, France discussed her paper of continuous infusion of ketamine for evisceration or enucleation surgery. It was certainly an interesting concept. Her conclusion was that the administration of continuous low dose ketamine infusions reduces the total intra and post-operative analgesic administration requirements for patients undergoing such surgery. Our Dear Friend and colleague Dr. Pavel Rylov from Yekaterinburg Center Eye Microsurgery complex in Yekaterinburg, Russia showed a video highlighting the interaction between ophthalmic surgeons and anesthesiologists in the conduct of safe ophthalmic patient care. Dr. Dagobert Lurch, consultant Anesthetist from Switzerland presented a novel method of reducing subconjunctival hemorrhage after sub-tenon's block. His methodology included use of surgical eye sponges to tamponode bleeding.

Finally, the president of the British Ophthalmic Anesthesia Society, Professor Chandra Kumar from Middleborough presented an award on the behalf of the entire membership to Professor Chris Dodds expressing appreciation for his key role in the Society. All in all this was a very engaging, interesting, well organized meeting that was most enjoyable and instructive. Many thanks to the conference organizer, Dr. Roger Slater for the invitation to speak and for a job well done.

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Perspective from Prague

Gwendolyn M. Boyd MD
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Birmingham AL

The Perioperative Care for the Geriatric Patient meeting was held in Prague, the Czech Republic June 14-16, 2009. Having wanted to go to Eastern Europe since I was in eighth grade (for those of you that know me—this was a long, long time to wait!) , this was too simply irresistible. Given the geriatric nature of ophthalmic surgery patients, the meeting was full of good information for all of us as ophthalmic anesthesia providers.

Michael Roizen MD, co-author with Mehmet Oz MD of the #1 Best-seller *RealAge: Are You as Young as You Can Be?* and currently Chief Wellness Officer of the Cleveland Clinic and the Chairman of the Wellness Institute, opened the meeting with "How a Beautiful Day Makes you Younger and Can be Everyday." He emphasized that we do get a "do over" and that is not that hard and doesn't take that long. Dr. Roizen made the analogy that our bodies are like a city with ourselves being the mayor. Our genes are like geography and although they cannot inherently be changed, there are a lot of appropriate adaptations that can be made. For instance, we can build earthquake proof construction, underground tunnels for walking in the winter or a levee system for preventing flooding. The brain is like the energy grid that supplies power to the entire city; it can be knocked out if neurological branches are allowed to fall on the power lines. The immune system is the body's police force while the arteries are like roads that can be clogged, blocked or worn down by years of abuse. Apo E protein acts like the power company crew that removes the branches from the power lines after a storm. They sweep through and remove the amyloid so that synapses can keep functioning. Slowing the rate of aging avoids the frailty that would make longevity undesirable.

To slow aging, Pop these Pills:

one half a multivitamin morning and night;

vitamin D 500 IU,

Calcium 600mg, zinc 8, and Magnesium 200mg, morning and night;

DHA –omega-3 600 mg a day;

162.5 mg of aspirin

add 10 minutes for meditation a day

30 minutes of walking with a buddy

and floss one's teeth.

Other highlights in Prague – in addition to sightseeing--of the Perioperative Care of the Geriatric Patient meeting included:

Physiology and pathophysiology of aging — what influence does anesthesia have on the perioperative phase? By H. Van Aken MD, *Münster University Hospital* Germany. Aging increases not only the rate of serious complications, but also the perioperative mortality rate. Preoperatively, the anesthesiologist needs to recognize important limitations in the patient's "*stress reserve*," which are often caused by advanced age with resultant physiological and disease-related organ damage. The aim in perioperative anesthesia management is to achieve consistent stress protection and to maintain stress homeostasis. Regional anesthesia is appropriate for stress protection, and depending on the surgical

procedure, it can be administered in the form of monoanesthesia or in combination with general anesthesia. The concept of “stress reserve” I thought was a fascinating one in preoperative assessment as well as perioperative management. Interestingly as I was writing this, the August issue of Anesthesiology arrived on my desk. The cover story, editorial and several articles within relate to stress management and adverse outcomes after surgery. Yet, the all time best article I have ever read on stress remains that of Steve Jackson, former chair of the ASA Ethics Committee, entitled The role of stress in anaesthetists' health and well-being, *(Acta Anaesthesiol Scand 1999; 43-583-602)*. I simply cannot recommend highly enough. It is great.

Fourteen papers on cardiothoracic surgery in the elderly followed. A variety of other papers including adrenal surgery, prostatic robotic surgery, transfusion in the elderly were also presented. I must admit I went sight-seeing during most of these in the beautiful city of Prague and surroundings including a crystal factory and the Pilzener brewery.

Historic Clock in Old Prague-Hour is on top and Minutes on lower clock

Two sessions on Brain Function in the Perioperative Period contained much pertinent information for those caring for ophthalmic surgery patients. I found the information on Post Operative Cognitive Decline (POCD) particularly relevant as approximately half of our retinal surgeons prefer general anesthesia for their cases. Informed consent may be difficult as the data is still evolving as to the etiology, risk factors, prevention and treatment.

James Cottrell MD, Senior Vice President, Dean Clinical Practice and Chair, Department of Anesthesiology SUNY Downstate Medical Center presented Anesthesia and the Older Brain wherein he reviewed POCD which was originally described in 1955. Bedford then reported a 10% incidence of long term or permanent mental deterioration after general anesthesia. This figure is consistent with current research. Independent risk factors for sustained POCD among the elderly include greater age, less education, POCD at hospital discharge and a history of stroke without residual damage. While duration of anesthesia has not been shown to be a risk factor for POCD. "a significant relationship between minimum intraoperative MAP and decline in cognitive function 1 day and 1 month after surgery" has been demonstrated. In a recent study by Monk and colleagues, 12.7 percent of elderly (>59 y o) non-cardiac patients had POCD three months after surgery. Dr. Cottrell’s Rovenstine Lecture at the 2008 ASA meeting (*Anesthesiology 2008; 109:377-88)* summarizes the history and current knowledge of POCD as well as present exciting and future areas of research including propofol rather than inhalation anesthetics, the use of lidocaine, xenon, erythropoietin, statins, protein kinases, and neurogenic agents. Meanwhile the adage of Bedford “operations on elderly people should be confined to unequivocally necessary cases” should be kept in mind when obtaining informed consent. Since the greatest health fear of Americans is going blind, one that far exceeds fear of either cancer or heart disease, the risks including POCD and benefits of having ophthalmic surgery need to be discussed in depth prior to elective procedures.

Keeping with the international flavor of the Prague meeting, Dr. Zoltan Mikes of Slovakia also spoke on Perioperative Cognitive Dysfunction in the Elderly. His study found a high prevalence of polymorbidities and cognitive impairment making these patients vulnerable for peri- and postoperative functional decline.

Jeffrey H. Silverstein, MD, Professor of Anesthesiology, Surgery, and Geriatrics & Adult Development ,Vice Chair for Research Department of Anesthesiology Mount Sinai School of Medicine presented Postoperative Cognitive Dysfunction following Non-cardiac Surgery. He commented on the number of methodological inconsistencies among studies making the limited literature on POCD difficult to interpret. One of the greatest problems facing the

investigation of postoperative cognitive function is the absence of a consensus regarding the operational definition of POCD. Essentially all of the studies to date have concluded that advancing age is a risk factor for POCD. Major surgery appears to be the principal trigger for POCD. A study comparing 164 patients undergoing general anesthesia and surgery with at least a single night hospital stay with 159 patients who underwent general anesthesia for ambulatory surgery, indicated that minor surgery was *NOT* associated with significant POCD --which sounded reassuring for our ophthalmic surgery patients.

To date, the etiology of POCD remains unclear. Cerebrovascular disease, cerebral hypoperfusion, genetic susceptibility, alteration in neurotransmitter function, neurohumoral stress and CNS inflammatory phenomena have all been suggested, but the principal suspect has been general anesthesia. The preferred method of evaluating the potential of general anesthesia to produce POCD has been randomized trials of general versus regional anesthesia. Numerous studies suggest that choice of anesthesia is not an important factor in the development of POCD.

(Wu CL, Hsu W, Richman JM, Raja SN: Postoperative cognitive function as an outcome of regional anesthesia and analgesia. Reg Anesth.Pain Med. 2004; 29: 257-68)

The search for either a genetic predisposition to POCD or a biomarker of POCD is on-going. Further study will be required to determine if long-term impairment is an important clinical finding. *See also: Silverstein JH, Timberger M, Reich DL, Uysal S. Central nervous system dysfunction after noncardiac surgery and anesthesia in the elderly .Anesthesiology. 2007;106:622-8.*

Christopher J. Jankowski, M.D. President, Society for the Advancement of Geriatric Anesthesia and assistant professor, Mayo Clinic presented the next topic entitled: Postoperative Delirium: Risks, Sequelae and Interventions. Delirium is among the most common perioperative complications in elderly surgical patients. In certain groups, its incidence may exceed 60%. It is associated with increased morbidity and mortality, decreased functional status, and increased healthcare costs which $2 billion annually in the U.S. Postoperative Delirium (POD) is an acute to subacute disturbance of consciousness that tends to wax and wane throughout the day. POD is characterized by cognitive or perceptual disturbances. It must be associated with a medical condition and not better explained by a pre-existing or evolving dementia. POD presents during postoperative days 1-3 and lasts from hours to weeks or, rarely, months. POD is an independent risk factor for reduced functional status. The relationship of POCD to POD is unclear. Patients that developed delirium in the ISPOCD1 study were not the same patients who developed POCD. *(Moller JT, Cluitmans P, Rasmussen LS, Houx P, Rasmussen H, et al:Long-term postoperative cognitive dysfunction in the elderly: ISCOPD1 study. Lancet 1998;351:857-61)* Risk factors for POD include age >70 years, cognitive or visual impairment, history of alcohol abuse or depression, and serum blood urea nitrogen/creatinine ratio ≥ 18. In addition, vascular disease and major surgery with large blood loss, and postoperative pain are independent predictors. Type of anesthesia (regional *vs.*general) does *not* appear to influence the risk of POD. Postoperative use of anticholinergics and benzodiazepines increases the risk of POD. The impact of the intraoperative use of benzodiazepines is not known.

When possible, predisposing factors should be mitigated. For example, pain should be treated aggressively and dehydration should be avoided. Normal sleep patterns and ambulation should be encouraged. Meticulous perioperative care may decrease the incidence of POD. Since CNS dysfunction may be the first sign of other illness in elderly surgical patients, POD should prompt consideration of an organic cause.

(Dasgupta M, Dumbrell A. Preoperative Risk Assessment for Delirium After Noncardiac Surgery: A Systematic Review. J Am Geriatrics Society 54(10): 1578–1589, 2006
Inouye, SK. Delirium in Older Persons. NEJM 354(11): 1157-1165, 2006
Kalisvaart KJ, et al. Risk factors and prediction of postoperative delirium in elderly hip-surgery patients: implementation and validation of a medical risk factor model. J Am Geriatrics Society 54:817-22, 2006)

Andrew M Severn, MA FRCA from the UK then presented Anaesthesia in the Elderly

Do we need a Subspecialty? He likened the present status to that of pediatric and obstetric anesthesiology 30 years ago and concluded that based on the unique physiology and pathophysiology of the elderly, that the time for geriatric anaesthesia sub-specialization has arrived.

Gabriella Bettelli MD (Ancona, Italy) talked on Geriatric Day Surgery: what are Possible Problems? Is Age an Independent Risk Factor? She began by noting that

in 2010, 88% per cent of ophthalmic surgery will be in geriatric patients. The general functional impairment associated with aging along with chronic disease creates a situation of vulnerability (which consists of a reduced capability to cope with stress and aggression) whose cardinal elements are polypathology (a clinical situation where clinical patterns, evolution and treatment are more complicated than the simple sum of different illnesses) and polymedication. While there are no trials investigating which anaesthesia technique is the best in elderly outpatients, because of the age-induced alterations in pharmacokinetics and dynamics, great accuracy is required in titrating doses and compensating cardiovascular and respiratory response to anaesthetics. A closed claims analysis on

liability associated with monitored anaesthesia care, general anaesthesia and regional anaesthesia, examined a total of almost 5000 cases, showed that patients in MAC claims were older and sicker and that inadequate oxygenation was at the origin of the claim in 15% of case in MAC, 7% in GA and 5% in RA. This report confirms that sedation in elderly patients may represent a situation at risk and that scrupulous observance is needed.

(S. M. Bhananker,; K. L. Posner, F. W. Cheney et al: Liability Associated with MonitoredAnesthesia Care: ASA Closed Claims Project Anesthesiology, ASA Annual Meeting ,2003
Fortier J, Chung F, Su J: Unanticipated admission after ambulatory surgery. A prospective study.Can J Anaesth 45: 612-19, 1998
Chung F, MezeiG, Tong D: Adverse events in ambulatory surgery. A comparison between elderly and younger patients. Can J Anaesth 46: 309-21, 1999
Fleisher LE, Pasternak LR, Herbert R et al: Inpatient hospital admission and death after outpatient surgery in elderly patients. Arch Surg 139: 67-72, 2004
Aldwinkle RJ: Unplanned admission rates and postdischarge complications in patients over 70y following day surgery. Anaesthesia 59: 57-59, 2004
Canet J, Raeder J, Rasmussen LS: Cognitive dysfunction after minor surgery in the elderly. ActaAnaesthesiol Scand 47 (10): 1204-10, 2003)

David J Wilkinson London, UK began his presentation on Ambulatory Care; a Further Challenge for Elderly Patients and their Carers by emphasizing the continuing tremendous increase in numbers of elderly patients presenting for surgery. For both economic and logistic reasons more and more will be treated as day surgery. He remarked that it is unlikely that a new series of anaesthetic drugs will appear for use in the next decade that will have significant impact on care. He even predicted that for economic and infection reasons, it is possible that for many surgical procedures, care will devolve to the patient's home rather than in the office, clinic or hospital facility in current use.

Geriatric aspects of post-operative disability by Eva Topinková MD from our host

Charles University in Prague, Czech Republic stressed Geriatric Frailty - found in 20-30 % of the elderly population over 75 years. Geriatric frailty related to diagnoses such as sarcopenia, osteopenia, non-specific balance disorders, nutritional problems and overall deconditioning, has been reported to be associated with long-term adverse health-related outcomes, e.g., loss of self-sufficiency, disability, mortality, hospitalization and institutional placement. Individualized multi-component intervention has been shown to minimize immediate and long-term postoperative risks as delirium, decubitus ulcers, deconditioning, disability and long-term care placement.

Joseph W. Szokol MD,Vice Chair Anesthesiology Northwestern University Chicago, Illinois, USA discussed Does Regional Anesthesia Lead to Better Postoperative Cognitive Function in the Elderly Patient than General Anesthesia? He reviewed POCD risk factors and research. Multimodal analgesia may improve postoperative neuropsychological outcomes. One intriguing study found that the patients who had general anesthesia alone had higher cognitive defects than patients managed with continuous nerve blocks alone. Even patients who had a general anesthetic combined with a postoperative continuous nerve block did better cognitively than those managed conventionally.

(*Jankowski CJ, Cook DJ, Trennery MR, Schroeder DR, Warner DO:Continuous peripheral nerve block analgesia and central neuraxial anesthesia are associated with reduced incidence of postoperative delirium in the elderly. Anesthesiology 2005;103:A1467)*

Two other studies Szokol mentioned were the propofol maintaining spatial memory better than isoflurane in a rat model (*Lee IH, Culley J, Baxter MG, Xie Z, Tanzi RE, Crosby G: Spatialmemory is intact in aged rates after propofol anesthesia. Anesth Analg2008;107:1211-5)* andanother that revealed a lidocaine infusion during cardiac surgery was associated with less deficit on postoperative neuropsychological testing.

(Wang D, Wu X, Li J, Xiao F, Liu X, Meng M: The effect of lidocaine on early postoperative cognitive dysfunction after coronary artery bypass surgery. Anesth Analg 2002;95:1134-4)1

Martin Nitsun MD, Northwestern University, Chicago, IL gave an overview of the Perioperative Management of the Geriatric Patient with Obstructive Sleep Apnea. (OSA) The prevalence of OSA in patients over 60 ranges from 37.5% to 62%. Even in the absence of comorbidities such as obesity, older adults may be subject to anatomic and physiologic changes that predispose them to OSA. Changes in bony structure, changes in the distribution of fat deposits in the pharyngeal wall and decreased activity of the pharyngeal dilator muscles all may contribute to the higher incidence of OSA in older adults. An expert consensus document published by the American Heart Association/American College of Cardiology emphasized the important association of OSA with cardiovascular diseases including hypertension, heart failure, coronary disease, stroke, and arrhythmias. Recognizing the risks of OSA in the surgical patient, the American Society of Anesthesiologists published practice guidelines for the perioperative management of patients with OSA.

(*Gross JB, Bachenberg KL, Benumof JL, et al. Practice guidelines for the perioperativemanagement of patients with obstructive sleep apnea: a report by the American Society ofAnesthesiologists Task Force on Perioperative Management of patients with obstructive sleepapnea. Anesthesiology. 2006 May;104(5):1081-93.)*

The ASA guidelines provide a framework for managing patients with OSA throughout the perioperative period. Understanding that the majority of patients with OSA have no formal diagnosis, the foremost obligation is to identify patients with suspected OSA. Chung et al. screened 2,467 preoperative patients without previously diagnosed OSA using three screening tools, the Berlin Questionnaire, the STOP questionnaire (*S*nore, *T*iredness, *O*bserved apnea, high blood *P*ressure) and the ASA checklist. They found there was no significant difference in the three screening tools and that all three demonstrated a "moderately high level of sensitivity for OSA screening.

(*Chung SA Yuan H, Chung F. A systemic review of obstructive sleep apnea and its implications for anesthesiologists. Anesth Analg. 2008 Nov;107(5):1543-63.*)

Therefore, in the absence of a formal polysomnogram (PSG), a presumptive diagnosis can be made using a variety of simple screening tools. Intra-operatively, peripheral nerve block or regional anesthesia is preferred over general anesthesia, thus avoiding the potential for difficult airway and minimizing narcotics with the inherent risk of postoperative respiratory depression. If general anesthesia is unavoidable, preparations should be in place for management of a difficult airway. Patients undergoing monitored anesthesia care (MAC) should not only be monitored with pulse oximetry, but also should have monitoring of ventilation with modalities such as capnography as the use of sedatives and opioids may predispose patients with OSA to airway obstruction. Patients with OSA should be extubated fully awake, in the semi-recumbent position with neuro-muscular blockade fully reversed. Postoperatively, non-opioid analgesics techniques should be employed such as administration of NSAIDs, infiltration of local anesthetics, and placement of peripheral nerve blocks. Due to the risk of narcotic and sedative induced postoperative respiratory depression, candidacy for day surgery discharge home should be evaluated on a case by case basis taking into account the severity of OSA, co-morbidities, the invasiveness of the surgical procedure and the need for additional narcotic analgesia. Patients deemed poor candidates for discharge home should be monitored in the hospital with pulse oximtery until they are no longer at risk. Because anesthesiologists serve as the final gatekeeper prior to patients undergoing surgical procedures, it is imperative for us to recognize the signs and symptoms of OSA, to acknowledge the association with cardiovascular disease, to probe patient's health histories and to educate ourselves on how best to manage these patients in the perioperative period.

Several sessions on aortic surgery, infection, resource utilization and carotid surgery provided another sightseeing opportunity for this ophthalmic anesthesiologist and her daughter. The last afternoon however there were two excellent and relevant (to me anyway) simultaneous sessions on Pathophysiology and Heart Failure.

Dr. Yitshal Berner from Israel presented How Aging Pathophysiology affects the Perioperative Patient. Both pharmaco-dynamics and pharmaco-kinetics are affected by the changes in the gastrointestinal tract, liver, kidney, brain, heart and the hematopoetic systems in the elderly. These have significant consequences on the peri-operative care.

Vladimir Cerny MD University Hospital Hradec Kralove, Hradec Kralove, Czech Republic gave a thorough summary of the Microcirculation and Aging.

- Brain

1. Increased arterial stiffness and microvascular damage in brain vessels (Triantafyllidi, 2009)
2. Aging-related cerebral microvascular degeneration is an important cause of essential hypertension (Qin, 2008)
3. Age-related microvascular degeneration in the human white matter, but the vascular density did not correlate with the age. (Farkas, 2006)
4. Aging is associated with increased collagen type IV accumulation in the basal lamina of human cerebral microvessels. Due to the accumulation of collagen, microvessels thicken and show a reduction in their lumen. Besides this, the number of vessels decreases. These findings might represent a precondition for the development of vascular cognitive impairment. (Uspenskaia, 2004)
5. Reduced vasomotor reactivity in cerebral microangiopathy in aged patients (Terborg, 2000)
6. Aging of the cerebral microcirculation results in significant alteration in the blood-brain barrier. (Shah, 1997)
7. Aging is associated with increased lipid peroxidation byproducts in cerebral microvessels along with a transient decrease in their antioxidative capacity. (Mooradian, 1995)
8. Age-related changes in the activity of ATPases in cerebral microvessels are present. These changes may contribute to the altered blood-brain barrier functions found in aged rats.(Mooradian, 1994)
9. Aging is associated with significant quantitative changes in protein composition of cerebral microvessels. The increased concentration of conjugated dienes in cerebral microvessels of aged rats is indicative on ongoing free radical damage in these microvessels which may contribute to the age-related changes in BBB function.(Mooradian, 1992)
10. Age-related decreases in the synthesis of vascular proteins may contribute, in part,

to some of the changes in the mechanical and functional properties of blood vessels during aging. (Gozes, 1981).

- Kidney

1. Renal microvascular disease is the crucial determinant of renal fibrosis in aged people.(Futrakul, 2008)
2. NO synthesis blockade has a greater effect on renal hemodynamics in aging rats and implies that NO may play a progressively more important role in controlling renal function with advancing age. (Reckelhoff, 1993)
3. Comparisons of laser-Doppler flow signals obtained from the renal papilla of young and adult animals indicated that papillary blood flow was approximately 2-fold greater in the adult rats than in the young animals. (Roman, 1986)

- Liver

1. Morphological changes in the hepatic sinusoid with old age include thickening and defenestration of the liver sinusoidal endothelial cell, sporadic deposition of collagen and basal lamina in the extracellular space of Disse, and increased numbers of fat engorged, nonactivated stellate cells. In addition, there is endothelial up-regulation of vonWillebrand factor and ICAM-1 with reduced expression of caveolin-1. These changes have been termed age-related pseudocapillarization. (Le Couteur, 2008)
2. Age-related changes in the architecture of the liver sinusoidal network, which may influence hepatic function and reflect broader aging changes in the microcirculation. However, sinusoidal dimensions and hepatic vascular dispersion are not markedly influenced by old age. (Warren, 2008)
3. 14% reduction in the numbers of perfused sinusoids between 0.8 and 27 month mice associated with 35% reduction in sinusoidal blood flow. There is also fivefold increase in leukocyte adhesion in 27 month mice, up-regulated expression of ICAM-1, and increases in intrahepatic macrophages. Sinusoidal diameter decreased 6-10%. (Ito, 2007)
4. Periportal and pericentral sinusoidal velocities of weanling (young) were approximately 30 and 25% faster, respectively, than those in adults. (Drugas, 1993) Splanchnic/mesenteric microcirculation
5. Age-related decrease in perimicrovascular protein in exteriorized mestenric windows in rats (Barber, 1995)

Summary of most important age-related (micro)vascular changes:

· Increase in medial and intimal thickness

· Increase in endothelial variant cells

· Change in vascular wall matrix

· Decrease in beta receptor content

· Decrease of beta receptor responsiveness

· Decrease in NO production

· Decrease of vasodilatation response

· Decrease of functional capillary density

The main role of Vegetative Nervous System in Protection of the Heart was discussed by Dr. Dobias Stritesky from Charles University in Prague and General University Hospital. As some may remember from the previous issue of OASIS, the autonomic nervous system is one of my current interests in anesthesiology. Therefore, I was fascinated by the term "Vegetative Nervous System which I had not heard before. I wish I had a copy of Dr. Stritesky' real slide showing the evolution of man to upright and then back hunched over while at his computer. Use your imagination and these photos I found on Google. I thought his original slide was hilarious.

St. Vitus Cathedral at Prague Castle

Charles Bridge over the Vltava River

While the autonomic nervous system originally evolved as a protective flight or fight response currently both our unhealthy way of life with excessive stress, insufficient

physical activity and obesity, and the whole range of most commonly occurring cardiovascular diseases (cardiac failure, hypertension, atrial fibrillation, CAD) as well as non-cardiovascular diseases (diabetes, a number of nephropathies and hepatopathies) are accompanied by undesirable stimulation of regulatory mechanisms, especially, however, of the sympathoadrenal system and Renin Angiotensin Axis (RAA). This hyperactivity contributes to the development of hypertension, atherothrombosis, dysrhythmias (especially atrial fibrillation), diabetes (and its complications), nephropathies (particularly diabetic nephropathy) and/or liver steatosis. For these reasons both these systems need to be concurrently curbed. This explains the focus of our interest on a strategy of their suppression, and also the fact why pharmaceuticals from the group of RAA system inhibitors and sympatho-adrenal activation inhibitors are the most widely used medications in cardiology.

Marc Rozner PhD MD Professor of Anesthesiology and Perioperative Medicine as well as Professor of Cardiology at The University of Texas MD Anderson Cancer Center and frequent lecturer at anesthesiology meetings, including the OAS and ASA Refresher Courses on Pacemakers and ICDs, then delighted those present with his "all new presentation" on The Patient with Heart Failure: Medical and Device Therapy. For a review of heart failure, he suggested **www.heartfailure.org/eng_site/hf.asp** Systolic heart failure Dr. Rozner described as mild when the ejection fraction (EF) is around 40%, while with severe HF the EF is less than 20%. The resultant left ventricular dilation leads to tachycardia. Diastolic heart failure Dr. Rozner said is actually an echo diagnosis with preserved EF and a stiff LV leading to increased left ventricular end diastolic pressures. He recommended a recent review by Maeder and Kaye (*J Am Coll Cardiol 2009; 53:905)*, entitled Heart Failure with Normal Left Ventricular Ejection Fraction.

Congestive Heart Failure(CHF) is the most common discharge diagnosis in Medicare patients. It carries an overall 5 year mortality of 50% and costs over $35 billion annually in hospitalization costs with half of patients readmitted in 6 months. The primary etiology of CHF is ischemic heart disease, followed by hypertension and diabetes, or some combination thereof -- which not infrequently occurs in our retinal surgery patient population.

Recent advances in the medical treatment of CHF include nesiritide, a recombinant human B-type natriuretic peptide which appears to have a better safety and tolerability profile than either nitroglycerin or nitroprusside, and Levosimendan which increases the sensitivity of myocardial contractile proteins to calcium. Myocardial contractility is enhanced with no change in cytosolic calcium concentrations. Chronic diuretic therapy may lead to resistance and renal changes as well as increased mortality.

Currently, any patient with significant cardiomyopathy (EF ≤ 35%) will likely be a candidate for ICD placement. In fact, ICD placement reduces mortality even in patients on optimal HF therapy.*(Bardy GH, Lee KL, Mark DB et al. Amiodarone or an implantable cardioverter-defibrillator for congestive heart Failure. N Engl J Med 352:225-37, 2005*

Kadish A, Dyer A, Daubert JP et al. Prophylactic defibrillator implantation in patients with nonischemic *dilated cardiomyopathy. N Engl J Med 350:2151-58, 200428)* I

Initially, approved by the US FDA in 1985, at least 100,000 ICDs will be placed this year, and more than 250,000 US patients have these devices today. ICDs measure each cardiac R-R interval and categorize the rate as normal, too fast (short R-R interval), or too slow (long R-R interval). When enough short RR intervals are detected, an antitachycardia event is begun. Either antitachycardia pacing (ATP - less energy use, better tolerated by patient) or shock is delivered, depending upon the presentation and device programming. Newer Medtronic ICDs begin a run of ATP while charging for shock. Most ICDs are programmed to "reconfirm" VT or VF after charging to prevent inappropriate therapy – fears of which occurring during ophthalmic surgery are often voiced, although have never been reported. Like pacemakers, magnet behavior in many ICDs can be altered by programming. Most ICDs will suspend tachydysrhythmia detection (and therefore therapy) when a magnet is appropriately placed. Some ICDs from Angeion, Boston Scientific (BOS)* or St Jude Medical† can be programmed to ignore magnet placement. Depending upon programming, antitachycardia therapy in some BOS ICDs can be permanently disabled by magnet placement for 30 seconds, and some patients have been discovered with their ICD antitachycardia therapy unintentionally disabled, usually when they had been disabled for surgery. In general, magnets will not affect the brady pacing mode or rate. Prior to any surgery, every ICD patient should undergo preoperative ICD interrogation.

*(Medtronic. Urgent medical device information: Sprint Fidelis® lead patient management recommendations .Published 10/15/2007. Available at:**http://www.medtronic.com/fidelis/physician-letter.html**. Accessed10/19/2007.*

Ellenbogen KA, Wood MA, Shepard RK et al. Detection and management of an implantable cardioverter defibrillator lead failure: incidence and clinical implications. J Am Coll Cardiol 41:73-80, 2003)

ALL ICD patients should have antitachycardia therapy disabled if monopolar electrocautery (Bovie) use is planned or if lead issues predisposing to inappropriate shock are present. Note that an inappropriate shock can be delivered without prior EKG changes if a lead is damaged or defective Note that an inappropriate shock can be delivered without prior EKG changes if a lead is damaged or defective; hence the recommendation that all ICDs be

interrogated prior to elective surgery including ophthalmic. On the other hand, bipolar cautery is okay!!!! The failure rate for ICDs is 21% , again necessitating frequent interrogation.

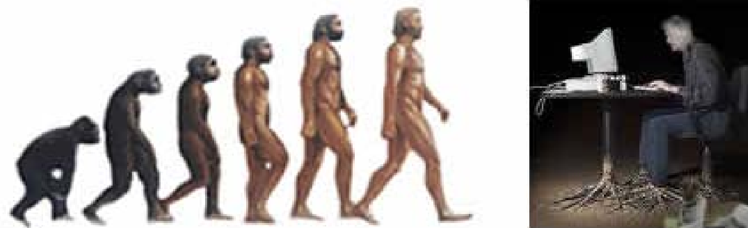
Dr. Alina Grigore, a cardiac anesthesiologist from Mayo Clinic in Scottsdale AZ presented a talk on the Surgical Options in Heart failure which at first glance one would not think would be very applicable to ophthalmic anesthesia providers. However, with left ventricular assist devices (LVADs) now coming into more widespread use as destination therapy and not just as a bridge to heart transplant, we are likely to see more and more LVAD patients presenting for ophthalmic surgery. In fact, we have done cataract surgery on two LVAD patients in the past year or so—and we turned down two others whom we decided needed to stay in their critical care environment and not come to our facility which in many ways is essentially an ambulatory surgery center, not physically attached to a tertiary care center. Dr. Grigore mentioned that studies have shown that the myocardium has the ability to repair itself during periods of unloading at which time there may no longer be a need for a heart transplant, thus further expanding the indications for LVAD placement.

Dr. Grigore stated that all mechanical assist devices such as the LVAD are preload dependent. Pulsatile devices are more interfered with by electrocautery than non-pulsatile devices. In the REMATCH study, 4 of 5 parameters of HF improved with LVAD implantation.

(*Rose EA, Gelijns AC, Moskowitz AJ, et al.: long-term mechanical left ventricular assistance for end-stage heart failure. N Engl J Med 2001:345, 1435*-) Miller LW, Lietz K.: Candidate selection for long-term left ventricular assist device therapy for refractory heart failure. J Heart Lung Transplant 2006:25, 756-*64 Leitz Circulation 2007 116:497*)

The Heart Mate II LVAD is small, has no valves, and is highly reliable with low maintenance. Currently, 90% of HF patients with a Heart Mate survive one year and 70% five years. Nonetheless, we required that LVAD nurse coordinator from the Heart Transplact ICU at UAB was there, prior to our patients' arrival for their cataract surgery. Both of our LVAD patients were quite functional performing well over 4 METS each day. Both were extremely grateful for their improved vision and quality of life.

The current state of the art for LVADS, Dr. Grigore said is analogous to white river rafting – pretty rough now, but the future looks good—or at least it did until Health Care Reform began being debated in Congress. An LVAD would probably be considered a "Cadillac Health Care Plan" unlikely to be covered—but who knows? Interesting times we live in, no doubt about it.



End-Stage Heart Failure. She began by mentioning the recent article entitled Impact of heart failure on patients undergoing major noncardiac surgery by **Hammill BG**, **Curtis LH**, **Bennett-Guerrero E**, **O'Connor CM**, **Jollis JG**, **Schulman KA**,(*Anesthesiology 2008; 108:559).* Elderly patients with heart failure who undergo major surgical procedures have substantially higher risks of operative mortality and hospital readmission than other patients, including those with coronary disease, admitted for the same procedures

Patients with Stage C HF are defined as having current or prior symptoms of HF (e.g.,dyspnea, fatigue, and reduced exercise tolerance) associated with underlying structural heart disease. Patients at this stage are treated with drugs, such as angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), aldosterone-receptor blockers, β-blockers, and other agents for symptomatic relief such as digoxin, diuretics, and other vasodilators. ACE inhibitors have been shown to decrease mortality in Stage II to IV HF by 15 to 30%. Controversy has existed on whether to continue ACE inhibitors prior to general anesthesia due to the sometimes profound hypotension that can occur particularly when the patient is also on amiodarone. Dr. Nussmeier believes the trend has shifted to continuing ACE inhibitors preoperatively as withdrawal leads to decreased regional circulation, especially in the myocardium and kidneys. However, hypotension can and does happen that is relatively unresponsive to both ephedrine and phenylephrine, not infrequently requiring vasopressin (1-4 U/hour) which is why several

years ago we started stocking it in every anesthesia cart in each of our ORs. Patients with severe HF are certainly prone to hypotension during induction of anesthesia due to low ejection fraction, intravascular volume depletion, and autonomic dysfunction, in addition to the use of ACE inhibitors. Patients on ARBs are also less responsive to ephedrine and phenylephrine and also may require vasopressin to increase the pressure. Patients on aldosterone receptor antagonists, such as spironolactone, require a preop potassium level check. Beta blockers need to be continued perioperatively to prevent withdrawal. Metoprolol, bisprolol and carvediol all have been shown to decrease sudden death in HF. Dr. Nussmeier staed that beta blockers are rarely indicated as prophylactic therapy preoperatively.

In decompensated heart failure, positive inotropes are often used, including agents such as digoxin, dobutamine, milrinone, and calcium sensitizers such as levosimendan. (*Toller WG, Stranz C. Levosimendan, a new inotropic and vasodilator agent.*

Anesthesiology 2006;104:556-69). However, with the exceptions of digoxin and possibly levosimendan, positive inotropic substances have been found to be detrimental in the long-term treatment of HF, because they contribute to the development of malignant ventricular tachyarrhythmias and increase the incidence of sudden cardiac death.

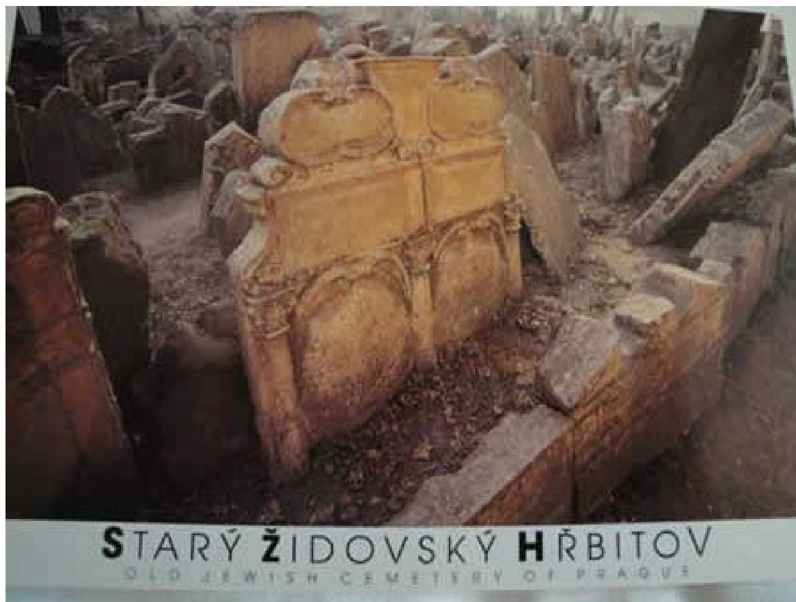
In summary, as the average age of the population increases, the epidemic of HF can be expected to continue. Therefore, anesthesiologists are now confronted more frequently with patients with advanced HF and with those who have had relatively new and innovative surgical procedures for HF.

One very important thing to do while all the way over on the other side of the Atlantic I believe is to take time to see other places. Lauren and I first spent three days in London on the way to Prague.

Overlooking the blue Danube River toward the Hungarian Parliament Building on the right and the Budapest Castle on the left.

Synogogue in Budapest
An incredible number that died at Auschwitz were Hungarian Jews.

Prague Subway Escalator - my daughter and I got really good at navigating the public transportation system



Old Jewish Cemetary in Prague with 12 layers of graves
Memorial to the End of Communism - during which everything was gray!

Vending Machine at Prague Airport-note beer right lower!
Drinking beer on the job at the crystal factory! Czech Republic has highest per capita alcohol consumption in the world.