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PRESIDENTS MESSAGE

Dear OAS members,

Our recent Member survey indicated we still have a strong preference for holding our annual meeting in Chicago. We're delighted to announce that dates have been selected - so mark your calendar and arrange time off now! The OAS 24th Annual Meeting will be held September 24-26, 2010, at the InterContinental Chicago. We have been able to negotiate a room rate of \$199; so you may want to spend a couple extra days enjoying the city.

As you know, dues notices for 2010 will go out in December. We encourage you to pay your dues early; the society needs your support and, beginning early next year, several new features of our web site, EyeAnesthesia.org, will be available only to current members. We are planning some exciting additions to the web site, including two of Dr. Robert Husted's educational videos, the on-line course prepared for the AAO, the Annual Meeting syllabus and Power Point presentations, a reading list, charting information, and access to the Yahoo! Discussion Group. We will also encourage members to create YouTube videos, which could then be linked to the OAS web site. We will post a membership roster to facilitate networking. And we ask you to let us know what other materials might be provided with members-only access on our web site. We want to add value to OAS membership beyond our annual meeting experience.

One of my goals this year as OAS President is to increase membership and support for our organization. Please help us attract new members by telling your colleagues about OAS and encouraging them to join. And if you have contacts with vendors, we need their support, too. Let us know who they are, and we will follow up with them.

I look forward to working with you this coming year.

Marc A. Feldman MD MHS
Clinical Director, Section of Anesthesia
Cole Eye Institute
The Cleveland Clinic



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Member Spotlight

Dean Moburg CRNA ARNP AA
Global Anesthesia Specialists PA
Leavenworth, Kansas
OAS member since 1993

In 1993 I received a phone call that changed my professional life completely. At that point in time our anesthesia group was providing anesthesia services to four hospitals in the Kansas City area. The call was from a friend of mine, a scrub tech, that I had worked with at one of our hospitals. He was working with a prominent ophthalmologist, as a private scrub, who at the time needed anesthesia coverage. My ophthalmic experience to that point was working with an older ophthalmologist who took approximately two hours to do a single cataract.



Thumbnail panels: [1](#) [2](#) [3](#) [4](#)

Global Anesthesia Specialists PA: Image (1 of 12)



Ophthalmology was a very small part of our overall practice. Needless to say I wasn't excited about spending all day doing four cataracts. Fortunately, the new ophthalmologist was faster and a master of efficiency. Over the years we developed techniques and



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procedures that have allowed us to do between seven and eight cataracts per hour.

To improve my skills in ophthalmic anesthesia I attended Randy Harvey's course in Florida. As many of you know, Randy is a very good anesthetist and an excellent teacher. I require all new employees to attend his class. Randy is a great resource and good friend.

Global Anesthesia Specialists now provides service to five eye centers in the Kansas City area, doing over 650 procedures per month. Our surgeons are among the best in the field. Procedures like DESAK, canaloplasty, Trabectome, artificial cornea procedures (KPro, Boston Prosthesis) have become as commonplace in our centers as cataract, trabeculectomy, and pterygiums.

Our centers were designed to be Eye Centers and they are just that. From the front door to exit, our patients are impressed with the efficiency of the center, but never feel rushed through their visit. We accomplish this with prior planning, being prepared, and using a system that has worked for many years. The ASC staff calls each patient prior to their surgery and obtains important basic information such as allergies, medications, surgical histories, etc. Morning of surgery, the anesthetist reviews and confirms the information along with the surgeon's clinic evaluation to confirm the procedure and correct eye, then completes a physical assessment.

The process starts with the front desk, through pre-op, intra-op, post-op, and discharge instructions. If any one of the areas slows or stops, the whole process comes to a halt. We are very fortunate to have staffs that know the system and enjoy what they do.

Global Anesthesia Specialists is blessed with the finest group of anesthetists I have ever had the privilege of working with. Their technical skills and compassion for each patient is second to none. Attached is a letter from a patient whose husband collapsed in the waiting area at one of our centers. The two anesthetists, which are also husband and wife, took care of the situation and the patient in the OR and as the letter says: a good result all the way around.

Our goals at Global Anesthesia are simple:

1. Patient safety (The eye belongs to the surgeon, the patient is ours.)
2. Patient satisfaction
3. Surgeon satisfaction

The OAS has played a major role in the evolution of Global Anesthesia. The format that allows ophthalmologists, anesthesiologists, and certified registered nurse anesthetists to come together as peers and share unselfishly ideas and knowledge is very unique. I personally learn something new at every meeting. Whether it be in the lectures, at the social gathering or at the bar in the hotel, I have picked up "pearls" from individuals like Drs. Hustead, Honan, Fanning, from fellow CRNA's, and from others too numerous to mention—pearls that have greatly improved our patient care.

Global Anesthesia provides services and very proud to be part of:

Blue Ridge Surgical Center, Raytown, MO
Deer Creek Surgery Center, Overland Park, MO
Liberty Cataract Center, Liberty, MO
Northland Eye Center, Liberty, MO
Surgery Center of St. Joseph, St. Joseph, MO

Global Anesthesia Staff:

Dean Moburg CRNA
William Mathia CRNA
Dave Johnson CRNA
Suzanne Marski CRNA
Ruth Pottinger CRNA
Christine Johnson CRNA
Sharon Zink, Office Manager
Linda Price, Account Manager

We at Global Anesthesia Specialists are thankful to those who have helped us develop our practice, policies, and procedures and are more than willing to help members of the OAS in any way we can. Please contact me at:

Dean Moburg CRNA
Global Anesthesia Specialists PA
Office: 913 727-5600
Fax: 913 727-5602
E-mail: Global Anesthesia Specialists PA Global Anesthesia Specialists PA

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Perioperative Statin Therapy

Myra Aultman CRNA & Gwendolyn Boyd MD
University of Alabama at Birmingham, Callahan Eye Foundation Hospital

LaManach et al in the June 2008 issue of Anesthesiology [1] highlighted the beneficial effects of statin therapy within the perioperative period. Some of the issues addressed were: modification of perioperative risk by statin administration, potential benefits and risks of statin therapy, and whether the continuation or discontinuation of statin therapy during the perioperative period was associated with additional risks.

Statin are prescribed to reduce LDL cholesterol concentration in an attempt to prevent cardiovascular disease. Statins reduce LDL cholesterol concentration by inhibiting HMG-CoA, a component of cholesterol metabolism. [1] However, the authors focused on the finding that statin therapy provides a greater than expected reduction in cardiovascular events. This was attributed to the anti-inflammatory, vasodilatory, and antithrombotic effects provided by statin therapy. These effects are a result of activation of inflammatory cells and platelets, an increase in anti-inflammatory cytokines, and the up-regulation of endothelial nitric oxide synthetase. It is the nitric oxide presence that allows for the vasodilatory effects of statins. Statins exert an antithrombotic effect by producing a nonthrombotic state in the endothelium. They also reduce the circulating levels of von Willebrand factors, favor thrombolysis, enhance fibrinolysis, and decrease platelet reactivity. These effects provide a reduction in the magnitude of tissue destruction and dysfunction in an ischemia-reperfusion injury. They may also increase the stability of atheromatous plaques after a coronary intervention, thereby reducing the risk for myocardial infarction.

The majority of patients exhibit a beneficial effect over the rare adverse effects that can be caused by statin therapy. Two adverse effects of statins are liver failure and rhabdomyolysis. However, these two rare adverse effects are heavily outweighed by the observed reduction in perioperative risk. Multiple studies have demonstrated statin therapy reduces the risk of postoperative death in patients who undergo noncardiac surgery. [2-6]

As with beta blockers and alpha 2 agonists, discontinuation of statins can result in undesired effects. Discontinuation of statin therapy results in the removal of the anti-inflammatory and vasodilatory properties exhibit by the drug. Even a one day discontinuation of statin therapy can cause a reduction in endothelial-dependent blood flow. [7,8] Thus, statin withdrawal could cause an increased risk of adverse cardiac events in the perioperative period. Spencer et al [9] reported that there was an almost threefold higher cardiac event rate in patients who had their statin therapy discontinued prior to surgery.

The rare adverse side effects of statins are not increased during the perioperative period of patients in whom statin therapy has been continued. Therefore, it was the conclusion of multiple authors, that use of statins in patients with cardiovascular disease should be continued in the perioperative period to reduce the incidence of myocardial infarction, stroke, and mortality during and after surgery. [1]

Recently, Brookes et al [10] in the British Journal of Anaesthesia (BJA) attempted to determine if statins should be used preoperatively for all patients at risk for cardiovascular events. The authors noted that these drugs could not only lower lipid concentrations, but also decrease coronary artery plaque size. In addition to these actions, the drugs, if taken daily, improve survival rates from ischemic and non-ischemic heart failure. Of interest, however, are the anti-inflammatory properties of the drugs. The authors stated that patients on statin therapy have decreased:

- mortality rates due to sepsis;
- renal damage in diabetics;
- incidence and progression of Alzheimer's disease and dementia; and
- incidence of both osteoporosis and macular degeneration.

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The BJA authors questioned whether statin therapy might be increasing cardiovascular disease by the inhibition of by-products such as coenzyme Q10 by preventing the hepatic conversion of HMG-CoA, a component of cholesterol metabolism. They stated that CoQ10 was important in maintaining heart strength and muscle function. Reduction of CoQ10 has been attributed to the muscle pain commonly reported with statin therapy. Supplementation with CoQ10 has been reported to have many beneficial effects including the reduction of myalgias associated with statin therapy. [11,12]

Brookes et al [12] proposed the following: statin therapy is probably beneficial in non-cardiac surgery; a dose-response relationship has not been proved for any of the statins in the incidence of perioperative complications; and, abrupt cessation of the drugs may be associated with increased cardiac events. Their only conclusion was that patients already on statins should be continued on the drugs in the perioperative period. They identified a need for well-designed randomized clinical trials to determine if statins did indeed provide cardioprotection and decreased mortality from sepsis during the perioperative period. We at Callahan Eye Foundation Hospital changed our clinical practice by requesting that all patients presenting to our facility for anesthesia remain on statin therapy during the perioperative period.

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Restless Legs Syndrome

Myra Aultman CRNA
University of Alabama at Birmingham, Callahan Eye Foundation Hospital

Restless legs syndrome (RLS) has been reported to occur in as much as 15% of the geriatric population. [1] It is characterized by unpleasant sensations in the legs that are relieved by limb movement. [2] This movement can make it difficult to proceed with an ophthalmic procedure when the patient is receiving monitored anesthesia care (MAC) or local anesthesia. Attempts to reduce the involuntary movements by giving additional sedation have often augmented the movement, resulting in either a conversion to a general anesthetic or discontinuation of the procedure. Augmentation has been defined as "a worsening of RLS symptom severity characterized by the occurrence of RLS symptoms earlier in the day, by a shorter latency to symptoms at rest, increased intensity of symptoms, and a spreading of RLS symptoms to previously unaffected areas of the body." [3]

Can certain drugs used daily by anesthesia providers cause the symptoms of RLS to worsen? Little information is available addressing this question. However, spontaneous movement during propofol administration has been reported in children. [4] The movements have been described as "myoclonic" and "myotonic" in both children and adults. [5]

Krauss et al reported two case reports of propofol induced dyskinesias in patients with Parkinson's disease who underwent stereotactic pallidotomy while off levodopa medication. [5] In both cases, the patients began to display dyskinesias after propofol administration. However, in both cases, the symptoms subsided within minutes after the sedation was discontinued. The authors of those case reports suggested that since propofol can cause abnormal movements, it might not be an ideal drug during neurosurgical procedures under MAC in patients with movement disorders.

What can be used in these patients that will not exacerbate leg movement? Alpert et al [1] suggested physostigmine as a possible treatment in a case report of a 77 year old man having a MRI of the cervical spine. In that report, leg movement continued even though a satisfactory level of sedation was maintained with a propofol infusion. Additional boluses of propofol and hydromorphone had no effect on the leg movement and the procedure was interrupted. A dose of glycopyrrolate 0.2 mg and physostigmine 1 mg IV was given and all leg movement ceased after 90 seconds, allowing the procedure to continue. The authors of that case report suggested that the physostigmine reversed the effects of the sedative causing the leg movement. [1]

Oral ketamine has also been suggested to hold promise as a treatment for RLS [5] A case report by Kapur and Friedman described how a 70 year old woman was treated successfully with an oral dose of 30 mg of ketamine mixed in 50 ml of water. The patient felt relaxed and noted no adverse effects from the ketamine but did have improvement of her RLS symptoms. [6]

One additional treatment for this disorder described as a case report involved the use of compression stockings. [7] The stockings were used during local anesthesia for a cataract extraction in a patient with such severe RLS symptoms that she requested a general anesthetic due to a fear of being unable to lie still during the procedure. Ironically, this patient was obese, and the anesthesia provider decided to use graded elastic compression stockings as prophylaxis against deep vein thrombosis. The patient was able to lie still and not move at all during a sub-Tenon's block or during the surgical procedure.

Traditionally, dopamine agonists have been prescribed as a management in this disorder. Therefore, anesthesia providers might recommend that the patient with RLS continue these drugs on the day of surgery. They might also recommend that the patient with RLS avoid caffeine, alcohol, and nicotine in addition to having iron and electrolyte deficiencies corrected. [8] Finally, benzodiazepines and opioids can be helpful in the management of



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these patients.

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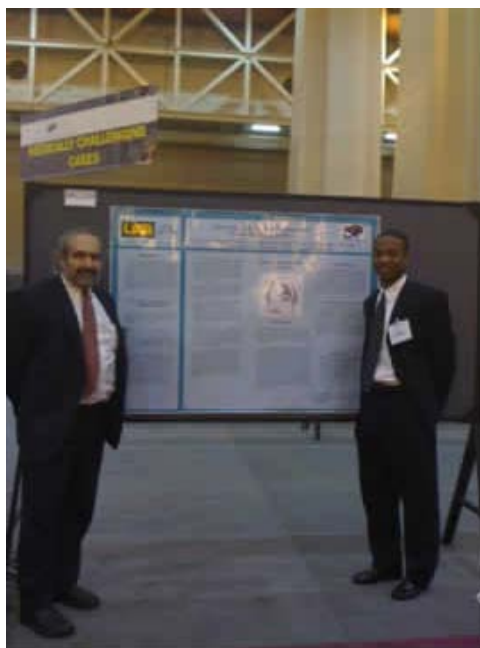
Patient with LVAD and Severe Pulmonary HTN Presents for Cataract Removal

Matthew E. Atkins MD MPH, Myra Aultman CRNA, Jason C. Swanner MD,
University of Alabama at Birmingham, Callahan Eye Foundation Hospital

ASA Medically Challenging Case 2009

At the annual meeting of the American Society of Anesthesiologists for the past several years, there has been a section each day wherein Medically Challenging Cases are presented and discussed. Callahan Eye Foundation Hospital (CEFH) has a wealth of medically challenging cases for anesthesia providers and we have been honored each year to have had our cases accepted for presentation at the ASA annual meeting.

Our 2009 ASA Medically Challenging Case was that of an LVAD patient presenting for cataract surgery at CEFH. We had previously done another LVAD patient and believe the key to successful management is close communication with and the presence of the LVAD coordinator from UAB's Heart Transplant ICU in the hospital prior to the patient's arrival staying until after departure. In addition, the patients should be stable and ambulatory. We have turned down several other LVAD patients for surgery at CEFH that met neither of these prerequisites.



This year's poster was first-authored by Dr. Matt Atkins, who rotated at CEFH as a senior resident in anesthesiology at UAB. Since Matt was unable to attend the ASA meeting in New Orleans and I was moderating another poster session at the exact same time, Justin Jackson, UAB medical student and officer in the Student Interest Group in Anesthesiology, stood by the poster during its presentation, answering questions. He is seen in the photo



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with the reviewer of the poster session.

Abstract

A 70 year old male with a dilated cardiomyopathy, CHF with AICD/pacemaker placement, atrial fibrillation, valvular disease, known CAD, now status post left ventricular assist device placement as destination therapy, presents with worsening vision in his left eye associated with a cataract. He has pulmonary HTN secondary to CHF, and a previous RHC has shown pressures of PA 77/31, PAOP 23. Although his exercise tolerance is reasonable, he reports near syncopal episodes and has difficulty breathing when lying flat. He is scheduled for elective cataract extraction. Management and appropriate monitoring will be discussed.

VAD Patients Presenting for Outpatient Surgery

Ventricular assist devices (VAD) present unique challenges to the ambulatory anesthesiologist. Indeed, most ambulatory anesthesiologists are unfamiliar with the management and technical aspects of VADs in patients presenting for outpatient surgery.

VADs are used in the end-stage cardiac failure patient as a bridge to recovery, transplantation, or as destination therapy. Since the publication of the REMATCH (randomized evaluation of mechanical assistance for the treatment of congestive heart failure) [1], VADs are becoming increasingly prevalent in the non-cardiac surgical patient population. The REMATCH trial found a significant improvement in both survival and quality of life in VAD patients compared to optimal medical management.

In a left ventricular assist device (LVAD), blood is usually drained from the left atrium or ventricular apex to the assist device, and then returned through a cannula to the ascending aorta. They have unidirectional inflow and outflow valves. The VAD pumps can be subdivided into two groups – pulsatile pumps that mimic the natural pulsing action of the heart and continuous flow pumps. The pulsatile variety of LVADs rely on positive displacement pumps, and the volume occupied by blood may vary during the pumping cycle. The continuous flow LVADs rely on either centrifugal pumps or axial flow pumps. Patients with a continuous flow LVAD will have a decreased, and sometimes undetectable pulse pressure. VADs are typically either electrically or pneumatically powered. The two most important factors in optimizing LVAD function include maintaining adequate intravascular volume and avoiding excess afterload or systemic vascular resistance. In addition to intravascular volume status, positive pressure ventilation and patient positioning may also affect device filling. Intraoperatively, a decline in the pump rate or output should immediately raise suspicion that one of these variables has changed. [2] The anesthetic technique may have a negative effect on preload and device filling.

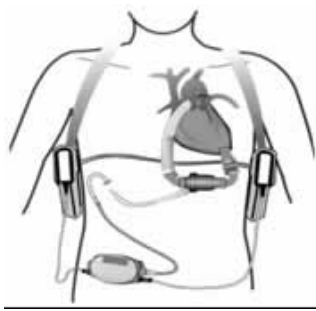
Most LVADs require long-term therapeutic anticoagulation to avoid thromboembolic complications. The HeartMate II device is unique in that it has a special inner surface that is composed of titanium microspheres with anti-thrombogenic properties that circumvent the need for additional anticoagulation.

Prior to surgery, documentation of a thorough history and physical, with special attention to the neurologic exam and signs of thromboembolic sequelae, is imperative. [2] Signs of hepatic and renal disease, common in end stage heart failure and LVAD dependent patients, should be sought, as well. The concurrent required anticoagulation with some LVAD devices may preclude some regional approaches. Increased intra-operative bleeding should be anticipated, and blood product availability verified if indicated.

Prophylactic antibiotics are warranted for any invasive procedure, as LVAD infection is a potentially life-threatening complication. LVADs are implanted in a preperitoneal location in the left upper quadrant, and may contribute to increased intragastric pressure. Therefore, rapid sequence induction technique is indicated. [2] It may be preferable to preserve the patient's spontaneous ventilation, as this may maximize venous return to the heart and optimize LVAD filling.

In terms of monitoring intra-operatively, the LVAD console will provide the pump rate and pump output. Flow rate are typically 2-5 liters per minute. There are no specific requirements for additional invasive monitoring in patients with an LVAD, outside of the monitoring one would normally select for a particular case. It should be noted that in devices that function asynchronously, the pulse rate on the monitor may differ from the rate derived from the electrocardiogram. Pulmonary artery catheters may be useful in patients with concomitant pulmonary hypertension, or in cases where large fluid shifts are anticipated.

Battery-powered HeartMate II LVAD System



Case Report

A 70 year old male with worsening visual acuity initially presented for preoperative evaluation prior to elective cataract extraction. His extensive cardiac history included ICD and left ventricular assist device placement and advanced pulmonary hypertension. He reports near syncopal episodes and has difficulty breathing when lying flat. He is scheduled for elective cataract extraction.

His comorbidities included hypertension, Parkinson's disease, paroxysmal atrial fibrillation, syncope, and history of orthostatic hypotension. His congestive heart failure, NYHA class IV, is secondary to a dilated cardiomyopathy. He had previous MI and multiple PTCA. He is status post St. Jude ICD and biventricular pacemaker placement, and his left ventricular assist device was placed three years prior as destination therapy. His pulmonary hypertension was secondary to CHF, and a recent RHC just prior to surgery revealed with PA 82/38, PAOP 31. Transthoracic echocardiogram revealed valvular heart disease including 3/3 MR, 3/3 TR, and 2/4 AI. ECG showed A-V sequential pacemaker capturing at 69 bpm, and a left bundle branch block. Medications included: alendronate (Fosamax®), allopurinol, aspirin, amiodarone (Cordarone®), calcium plus vitamin D, colchicine, coumadin, digoxin, Dulcolax, dutasteride (Avodart®), eplerenone (Inspra®), esomeprazole (Nexium®), Fiberlaxative, lactulose, midodrine, Miralax, prednisone 5 mg, sildenafil (Revatio®), sorbitol, temazepam, terazosin, torsemide (Demadex®) and tramadol.

Anesthetic Plan

Plans for an anesthetic consisting of only topical local agent were discussed with the patient. Arrangements were made for a VAD coordinator or perfusionist to be present during case to assist with monitoring device function and pressures. Standard ASA with no additional invasive monitoring was planned. Due to his concomitant severe pulmonary hypertension, sedatives, including benzodiazepines and opiates, were minimized in the holding area as well as the operating room. These respiratory depressants could potentially result in hypercapnia and/or hypoxemia exacerbating the existing pulmonary hypertension.

Intra-operative Management and Post-operative Course

Upon arrival to the operating room, supplemental nasal oxygen was supplied at a rate of 4 liters per minute. Standard ASA monitors were applied and the LVAD was connected to the console to monitor device output and pressures. The patient was able to tolerate lying flat and maintained saturations above 90% throughout the case. Intravenous sedative drugs were avoided completely. The patient received topical local anesthetic only. The cataract surgery was completed without incident in seven minutes. Following the surgical procedure, the patient was monitored in the PACU. Oxygen was discontinued and the patient was discharged home.

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The presentation of this case report was approved by the Institutional Review Board of the University of Alabama at Birmingham.