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President's Message

Welcome to SOCCA!



Michael F. O'Connor, M.D.
President

On the October 15, 2010, a record 251 people attended the 23rd Annual Meeting of the ASCCA, but, at the end of the day, attended the first post-meeting reception hosted by the Society of Critical Care Anesthesiologists (SOCCA). This change in name is the culmination of years of deliberation.

It reflects both our society's interest in cultivating an international membership, and acknowledges the increasingly trans-national standards in the practice of critical care medicine.

The annual meeting was a wonderful mix of clinical and basic science, organized by **Andrew Rosenberg, M.D.** and **Laureen Hill, M.D.** The program included an update on Obstetric Critical Care by

Arvind Palanisman, M.B.B.S., M.D., a review of the perioperative care of bariatric patients by **Charles Weissman, M.D.**, and a quick review of new drugs by **Andrew Patterson, M.D.** A previous ASCCA-FAER Physician Scientist Award recipient, **R. Blaine Easley, M.D.**, reviewed the molecular mechanisms of ventilator-associated lung injury.

The President Elect of the ASA, **Mark Warner, M.D.**, broke new ground in his presentation to our society by delivering a brief address, followed by substantial interactive session with attendees. While many leaders pay lip-service to listening to their constituents, Dr. Warner deserves full marks for actually doing so.

Three exceptional individuals were honored at our annual meeting. The first was **Heidi Kummer M.D., M.P.H.**, who was given the Burchardi Award by our President, **Todd Dorman M.D., F.C.C.M.**, and **William Hurford, M.D.**

internationally renowned expert on mechanical ventilation. Next, I had the pleasure of presenting the Young Investigator Award to **Marina Yamada, Ph.D.**, whose talk "iNOS Inhibition Prevents Muscle Wasting, Apoptosis, and Decreased Akt Activity in Burned Rodents" was a captivating review of a new approach to a previously poorly understood problem that complicates the care of many critically ill patients. I look forward to reading the results of her further work on this exciting project, which is certain to be of interest to intensivists everywhere.

Lunch was accompanied by a lecture about pain management in battlefield casualties by **Colonel C.C. Buckenmaier III, M.D.** of the U.S. Army. While the title of his talk was "Regional Anesthesia in Austere Environments and Battlefields: Lessons Learned from Iraq and Afghanistan," it was really a gripping personal narrative about a program to provide adequate

pain control to combat casualties for perhaps the first time in history. Clausewitz said: 'in war, even simple things are hard;' this truth extends to providing any kind of care, including analgesia, to combat casualties.

The inevitable after-lunch hypoglycemia was offset by a debate about Donation After Cardiac Death, moderated by **Robert Sladen, M.D.**, between **Nicholas Sadovnikoff, M.D.** and his poor opponent, me.

The afternoon session included an infectious disease update by **Sylvia Dolinski, M.D.**, a review of the perioperative care of the patient

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Next, **M. Christine Stock, M.D., F.C.C.P., F.C.C.M.**, Chair of Anesthesia at Northwestern University, was presented with the Lifetime Achievement Award by **William Peruzzi, M.D.** Her history of the evolution of mechanical ventilation, entitled "We've Come a Long Way (Baby)!" was a terrific overview of the history of mechanical ventilation, complete with amazing photographs. Dr. Stock was president of the ASCCA from 1991 to 1992, and is an

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ASCCA Dues

Dues are \$150 for active members; \$100 for affiliate members and \$20 for residents/fellows. Dues may be paid online at www.ascca.org/shop/index.php by credit card or by mailing payment to the ASCCA office at 520 N. Northwest Highway, Park Ridge, IL 60068.

Remember, payment of your dues allows you to enjoy the full privileges of ASCCA membership.

EDITORIAL NOTES

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A Note from the Editor to ASCCA Members:

If you would like to contribute a review for a Fellowship Program at your institution in a future issue of the ASCCA Interchange, please contact Chris Dionne at c.dionne@asahq.org.

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Welcome to SOCCA!

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undergoing pulmonary thromboembolism by **William C. Wilson, M.D.**, and synopsis of the rapidly evolving and increasing important topics of certification and competency by **Neal Cohen M.D., M.P.H., M.S.** Finally, The Professor, **Douglas B. Coursin, M.D.**, led interactive ICU rounds with the assembled attendees. This lively discussion, which reflected the vast diversity of practice and experience of our attendees, was the perfect ending to a terrific day.

Our business meeting included reports from a number of Committee Chairs and representatives. Importantly, **Michael Murray, M.D., Ph.D.**, our new section editor for *Anesthesia & Analgesia*, our official journal, welcomed submissions from our membership. During the society's business meeting, a number of faculty including **Hannah Wunsch, M.D.**, **Michael Wall, M.D.**, **Michael Woo, M.D.** and **R. Eliot Fagley, M.D.** led a townhall style meeting for resident and student attendees of our meeting. Thanks to **Michael Avidan, M.D.** for organizing this terrific experience. Our business meeting included elections, the most important of which was the election of **Linda Liu, M.D.** to the Board of Directors. **Brenda Fahy, M.D.** became our new President Elect, **Aryeh Shander, M.D.**, our new Treasurer, **Avery Tung, M.D.** our new Secretary, and **Todd Dorman, M.D.** our Immediate Past President.

The fellowship breakfast meeting on Saturday, October 16 was co-chaired this year by **Theresa Hartsell, M.D.** and **Benjamin Kohl, M.D.**, and covered a wide range of topics of great importance to those who train the members of our specialty from the USA. The world of fellowship training is changing rapidly. SOCCA is in the process of establishing a committee to help its members deal with common issues and problems. We are still exploring how we will relate to the newly founded Association of Anesthesia Subspecialty Program Directors (AASPD).

We are a volunteer society. Everything we accomplish is a consequence of the efforts of our members. Please contact myself or

Board member **Christine A. Doyle, M.D.** continues to manage our website, which is also home to the on-line versions of the Interchange. Our thanks go to **Michael Wall, M.D.**, who has done a terrific job with our newsletter, and to our new team of **Jean Charchafieh, M.D., Dr.PH.** and **Liza Weavind, M.D.**

Next year's annual meeting will be in Chicago on October 14. Mark your calendars. It will be the *first* meeting as SOCCA, but continue an established tradition of outstanding educational content. Stay tuned to future newsletters for more information from our new co-chairs: **Laureen Hill, M.D.**, **Ron Pauldine, M.D.** and **Vivek Moitra, M.D.** Members are also welcome

to attend the Board of Directors meeting, which will happen the day before the annual meeting. It is a terrific window into all of the business of our small, but incredibly dynamic society. Finally, on behalf of the Board and the membership, I want

“We are a volunteer society. Everything we accomplish is a consequence of the efforts of our members.”

Brenda Fahy if you would like to participate in any of our society's activities. Our membership remains strong, thanks to the efforts of our membership committee. **Sam Galvagno, D.O.** has agreed to replace **Gregory Botz, M.D.** as the chair of this crucial committee. Our recruitment of future members includes a variety of activities, including the production of a *Residents' Guide to the ICU*, presently under the stewardship of **Sheriff Afifi, M.D.** and Board Member **Miguel Cobas, M.D.** Work is proceeding apace, and with luck, we will have a new edition around the time of next year's annual meeting!

to thank **Chris Dionne** from our central office for her hard work for our Society.

PRO: Regional Anesthesia in the ICU Is Conducive to Good Outcomes and Should Be Encouraged and Developed



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Reason 1: Much of the pain, as well as some of the pulmonary morbidity following thoracic and upper abdominal surgery may be mitigated by the use of aggressive regional anesthesia.

A good source to bolster this assertion is a recent systematic review of the thoracic anesthetic literature by Joshi et al.¹ The authors convincingly demonstrate that thoracic epidural analgesia with local anesthetic plus opioid, or continuous paravertebral block with local anesthetic, were very effective at reducing morbidity after thoracic surgery. The authors examined 74 randomized studies on analgesia after thoracic surgery, and their meta-analysis showed unmistakable reduction in pain scores for the day of surgery and the first three postoperative days. It also showed a reduction in pulmonary complications in the paravertebral block group as compared with patients who received systemic analgesics (NNT 4.2 +/- 0.08). The paper reinforces the widely accepted argument that regional analgesia in the ICU is particularly useful following thoracic surgery.

Similarly, post-operative respiratory complications (atelectasis, infection, hypoxemia, restrictive physiology) from upper abdominal surgery are most frequently linked to diaphragmatic dysfunction rather than structural disruption. This has been felt to be related to splinting and inhibition of phrenic nerve efferents in response to splanchnic afferent irritation.² Regional anesthesia can blunt this reflex and potentially reduce the incidence of post-operative respiratory failure, thereby reducing or eliminating ICU stay.

Reason 2: Patients undergoing bowel surgery have faster return of intestinal function with regional anesthesia than with systemic analgesics. In the nutritionally deficient critically ill population, early enteral feeding promotes wound healing, decreases incidence of infection, and avoids the risks associated with initiating parental nutrition.

An older study looked at 54 patients undergoing colon surgery who were randomized to epidural vs. systemic perioperative analgesia. On average, the epidural group had return of bowel function 1.5 days earlier.³ These results were repeated in a study of 50 patients undergoing laparoscopic colon surgery, who were randomized to epidural analgesia vs. systemic morphine. Again return of bowel function occurred 1-2 days sooner ($p < 0.005$) as was resumption of full diet ($p < 0.05$).⁴ In both studies, pain scores were also lower in the patients randomized to the epidural group.

Reason 3: Regional anesthesia allows clinicians to avoid or reduce the dose of systemic analgesics and sedatives such as opioids and benzodiazepines. Avoiding or reducing heavy and prolonged intravenous sedation reduces the risk of delirium and cognitive impairment in the ICU.

A review in *Critical Care* by Girard TD, et al., showed that multiple studies have demonstrated a strong dose-dependent association between delirium and exposure to sedative and analgesic medications, especially opioids and benzodiazepines.⁵ Several studies reviewed showed that odds ratios for delirium were increased more than two-fold when significant amounts of these drugs were used. Managing patients with delirium remains one of the greatest challenges in the ICU, frequently being one of the major barriers to liberating patients from mechanical ventilation or preventing an otherwise clinically well patient to safely transfer to a less monitored ward. It is imperative to employ therapies that minimize this risk. Again, regional anesthesia is the best strategy for reducing the use of systemic analgesics such as opioids.

Reason 4: Risks of deep venous thrombosis, pulmonary embolus, and transfusion may be reduced in patients undergoing surgery with regional anesthesia versus general anesthesia. These complications are endemic in the ICU as well; so regional may provide the same benefits in this setting.

For certain operations like hip surgery, sufficient data exist to provide a good comparison between regional and general anesthesia. A recent meta-analysis by Mauermann, et al., analyzed ten independent trials, involving 330 patients under GA and 348 patients under neuraxial block, who underwent total hip replacement. Pooled results from a subset of five trials showed that neuraxial block significantly decreased the incidence of radiographically diagnosed deep venous thrombosis (DVT) or pulmonary embolism (PE). Intraoperative blood loss was reduced by 275 mL/case, and patients receiving regional anesthesia were much

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CON: Regional Anesthesia in the ICU Is Not Conducive to Good Outcomes and Should Be Neither Encouraged Nor Developed.



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Reason 1: Infectious risks are significant when indwelling catheters are used, as they are in regional anesthesia. In the ICU, infectious hazards are numerous and the pathogens are virulent and frequently antibiotic resistant. The ICU therefore is not a good environment for introducing regional anesthesia as an additional complicating factor.

Although iatrogenic meningitis from various pathogens has been reported following spinal anesthesia,¹ the use of epidural catheters and other indwelling catheters provides a route for microorganism entry.² In general, regional anesthesia is known as a contributing factor to infection and sepsis.³ Therefore its use in the ICU puts an already vulnerable patient population at further risk of infection and its sequelae.

Reason 2: Patients in the ICU need close neurological monitoring which is confounded by some kinds of regional anesthesia.

Several neurologic diseases or catastrophes may threaten patients in the ICU, and part of our care involves monitoring for these possibilities hour by hour. Among these are delirium, stroke, subdural hematoma, septic encephalopathy, epidural abscess, seizures, and the myoneuropathy accompanying muscle relaxants and steroids.

Though the benefits of regional anesthesia in patients are potentially great, the overriding consideration in ICU patients is avoiding major morbidity, including neurologic morbidity. The use of regional anesthesia complicates monitoring of the CNS.

For example, spinal epidural abscess is notoriously difficult to diagnose because patients may not report the back pain, leg weakness, paresthesiae, or abdominal distension which usually accompany it. Or, such symptoms may be attributed to other things: bedrest, deconditioning, opioid-induced akinesia of the gut, or the weakening or dysesthetic effects of local anesthetics on motor strength.⁴

In one unusual example,⁵ a primiparous patient presented in the third trimester with classic signs and symptoms of Guillain-Barré Syndrome. She improved dramatically over the next 10 days with infusion of immunoglobulin. At the time of delivery, she received epidural analgesia with test-dose lidocaine, ropivacaine, epinephrine, and sufentanil. She had permanent sequelae (was walking with a walker months after delivery) thought to be due to the interaction of the local anesthetics' toxicity and the pathophysiology of the disease process.

Reason 3: Patients in the ICU are at risk for coagulopathy, due to sepsis or as a result of anticoagulant medication. This renders regional anesthesia more hazardous.

The high prevalence of DVT in hospitalized patients has engendered in the ICU community a strong awareness of and emphasis on

preventing thrombosis and thromboembolic complications. The use of anticoagulants has expanded greatly in the unit. The use of regional anesthesia concomitant with anticoagulation has been recently reviewed, and management of such patients outside of the ICU is complex. The primary concern is spinal epidural hematoma.⁶ In the ICU other factors are common which complicate coagulation: hypothermia, hemodilution, thrombocytopenia, sepsis, medications (aspirin, Coumadin, etc.) and disease states such as renal failure. In this setting, regional anesthesia presents an additional, perhaps untenable, hazard.

Reason 4. Patients in the ICU are at risk for venous thrombosis and regional anesthesia compounds this risk.

Dural puncture is thought to be an independent risk factor for the development of intracranial dural venous sinus thrombosis.⁷ Add to this the other factors likely to contribute to thrombosis and thromboembolism in the ICU: Stasis of extremities, inflammation from a variety of causes including neoplasms, thrombophilia from Factor V Leiden, Protein S deficiency, Protein C deficiency, etc., and disease states such as Systemic Lupus Erythematosus.

Reason 5. Patients in the ICU are already receiving significant intravenous medications for sedation and are not likely to benefit from the regional anesthesia or analgesia.

Clinicians have devised a number of scales to assess depth of sedation and analgesia in the ICU. Likewise devices like the Aspect BIS[®] Monitor have been used to try to determine depth of sedation and awareness in the ICU.⁸ The central problem is that ICU patients are often unable to communicate cogently to

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caregivers about their symptoms, hence the need for such indirect measures as agitation scales and processed EEG machines. Regional anesthesia might provide marginally better analgesia here, but how might one assess this? How might one distinguish between the analgesia provided by infusions and that from regional techniques in a population of nonverbal, noncommunicative patients?

Reason 6. Patients in the ICU have frequent hypotension and regional anesthesia both contributes to this hypotension and confounds its diagnosis and treatment.

The most frequent complication of regional anesthesia is hypotension.⁹ The treatment for

this in relatively healthy surgery patients is fluid administration and a pressor medication like ephedrine. Unfortunately such measures may be impractical in the ICU: Patients may be under fluid restriction, or undergoing diuresis. Or hypotension will be poorly tolerated, even life threatening, as it is in many neurologic or cardiac derangements. Again, here, regional anesthesia, fine in other places, clashes with the ICU setting.

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PRO: Regional Anesthesia in the ICU Is Conducive to Good Outcomes and Should Be Encouraged and Developed

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less likely to receive transfusion than those receiving general anesthesia.⁶ Another review of 18 studies involving 1239 patients supported the findings of decreased perioperative blood loss and need for blood transfusion among patients who received regional anesthesia as compared with general, however, there was no difference in the incidence of DVT/PE with either anesthetic technique among patients who received chemoprophylaxis.⁷

Reason 5. Using regional anesthesia may help prevent long term complex regional pain syndromes from occurring following extremity trauma. It may also allow for preemptive analgesia and less morbidity from pain postoperatively.

A recent update and review on the pathophysiology of complex regional pain syndrome (CRPS) by Stephen Bruehl points to a mechanism involving alterations in afferent nociceptive pathways that occur over time in patients with CRPS.⁸ It is believed that regional anesthesia applied in a timely fashion to extremities at risk for development of changes

characteristic of CRPS may prevent or mitigate the symptoms. Certainly the use of regional anesthesia – including sympathetic blocks such as stellate or lumbar sympathetic blocks – is well established in the therapy of CRPS.

Reason 6. Patient satisfaction and analgesia are superior with regional anesthesia versus intravenous sedation.

Spencer Liu and Christopher Wu recently reviewed the literature to try to assess the effect of postoperative analgesia on patient-reported outcomes, such as quality of life, postoperative quality of recovery, and patient satisfaction.⁹ Regional analgesic techniques were superior compared with systemic opioids. There were insufficient data, however, to determine if the type of analgesic technique might influence long-term outcomes such as self-reported quality of life, quality of recovery, and overall satisfaction.

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PRO: ACGME Work Hour Restrictions: Making Medical Training Humane



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Much has been made of the “80-hour work week” since it went into effect in 2003. No matter how one feels about it from a personal standpoint, it was a revolutionary idea that the American College of Graduate Medical Education put into action. As evidenced by mankind’s history since time immemorial, revolutionary ideas always meet resistance. Slashing trainees’ work hours was no different in this respect. In fact, the ACGME has compiled list of about 500 publications beginning in 1991,¹ which illuminate various corners of the debate.

It is likely that another 500 publications are about to be generated with the most recent recommendations by the ACGME to further limit work hours. As background, in 2008, the Institute of Medicine (IOM) published a consensus report that recommended further restrictions beyond those made in 2003. In the report, they cited the “necessity to protect patients from fatigue-related mistakes” and “an enhanced learning environment” as reasons for further limitation.² This consensus report caused much uproar, especially in the surgical and

perioperative specialties and subspecialties. The ACGME’s most recent recommendations are fairly similar to those controversial IOM recommendations from 2008, with a few modifications. While each field and subspecialty of medicine will be affected in different ways by the new guidelines, it is important for us to focus on four areas salient to critical care medicine: patient safety and physician decision-making; quality of life; the educational experience; and handover and information transmission.

There is little doubt that sleep-deprivation, whether chronic or acute, impairs our ability to make quality decisions. From our collegiate “all-nighters” preparing for mid-terms and finals, to our marathon sessions spent cramming for Gross Anatomy exams in medical school, to the seemingly endless strings of pages for inpatient care and consults, to the pages in the middle of the night from our current trainees looking for guidance, we know all too well the effects of sleep deprivation. Our ability to interpret data and formulate a cohesive and appropriate plan can be affected to some degree. While that may be an acceptable risk when we were studying the structures of our cadavers in Gross Anatomy as medical students, it is not an acceptable risk when our decisions ultimately affect our patients’ lives and may result in death. In addition to our critical thinking skills, our motor skills and attention are affected by sleep deprivation. So not only is it difficult to formulate a plan, but in a sleep-deprived state we are prone to procedural mistakes simply due to clumsiness.

As if the decision-making and procedural errors of sleep-deprivation were not enough, we can add another layer of distraction to our list: poor overall quality of life. With the rapid acceleration of medical science over the past century, physicians carry an ever-growing burden to be knowledgeable about the cutting edge of our field. We must be able to educate our patients about their complex disease processes, and we are expected to be available at any hour to do so. We are to do this while

coaching our children’s Little League teams and maintaining healthy friendships, relationships, and marriages. Add the realities of household maintenance to the vast cognitive demands placed on medical trainees, and it is easy to see how it may be difficult to prioritize the innumerable competing demands of life. Thus, our profession suffers the stigma of a perceived work-life imbalance, and I am convinced that our ability to recruit the “best of the best” was waning prior to the new work hour restrictions.

The effect that sleep-deprivation and the distractions of poor work-life balance have on our cognitive performance as practitioners and trainees has even further-reaching implications when our educational mandate is considered. Not only do we have the responsibility to take exceptional care of our patients, but we also have the responsibility to teach the next generation of physicians how to carry the torch. When the faculty members are fatigued, our ability to do applicable bedside teaching is hindered. When our trainees are fatigued, their ability to synthesize information is impaired and the educational experience is compromised. The balance is shifted too far toward service in the service-to-education ratio that exists in academic medicine. Clearly, the concept of “compromised teacher, compromised learner” flies in the face of the traditional academic medical mentality, best summarized by the following:

“Do you know why I hate every other night call? I only get to see half the cases.”

While that may be true on some level, clearly a balance must be struck between maximum exposure to pathology and maximum effectiveness.

The further decrease in work hours is also bound to increase the number of handovers and opportunities for mistakes in information transmission. While many see this as a reason to condemn the new model, I see this as a new educational mandate. The current models

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CON: ACGME Work Hour Restrictions: Making Medical Training Humane



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When work-hour limitations were instituted by the ACGME in 2003, training programs were forced to adapt to an effective decrease in manpower. Programs responded in various ways, including instituting night float systems, limiting the number of residents in-house at any given time, and sending residents home at the end of a shift.¹ Changes to call systems almost universally led to a self-reported improvement in residents' quality of life. While most would agree that improving residents' quality of life is a worthy endpoint, the effect these changes have on patient care is less clear. In fact these changes have led to unintended consequences that likely worsen patient care.

The decrease in the number of residents in-house necessarily leads to an increased patient-to-resident ratio. Many hospitals have dealt with this problem by hiring more physician extenders (nurse practitioners and physician assistants.) Not all facilities have the resources to hire the additional support staff needed and this may lead to an increase in health care outcomes disparities in facilities with fewer

resources. The effects on these hospitals may not be reported in the literature.

More patient hand offs increase the risk for omission of important information.² Physicians are not routinely taught how to effectively sign out patients to each other. One reason physicians are poor at teaching effective hand off techniques is that the level of detail interns need to sign out to each other is vastly different from the level of detail senior residents and attendings need to sign out. The usual method of learning from the example of a mentor is not applicable in this case. While improvement in the effectiveness of hand-offs is important with or without work-hour limitations, the effect of the work-hour limitations has raised the acuity of this issue in resident education.

Because of the strict interpretation of shift limits, residents are required to leave the hospital at the end of a duty shift without regard to their role in patient care. Sending residents home prior to completion of a patient's workup impairs the ability of the young physician to observe the effectiveness of treatments and diagnostic modalities. For instance surgical residents who were once able to evaluate a patient from their initial presentation through the completion of their operation are now forced to go home and allow a resident who has just met the patient to perform the operation. As yet, it is unclear whether the lack of patient continuity might lead to a fundamental change in the development of doctor-patient relationships.

In some studies, residents reported a decrease in the attendance of didactic sessions after the implementation of work hour restrictions. Many programs have been slow to adapt their didactic programs to fit the new schedules of residents. Resident education will have to evolve quickly in order to keep up with these new demands. Residency programs have devoted more manpower to higher acuity services at the expense of services which broaden the educational experience.³ The shift from educational rotations to service-heavy ones will likely prove detrimental to our goal of

producing skilled physicians.

Based on recommendations from the Institute of Medicine, the ACGME has now instituted additional limitations of work hours. These limitations go beyond the basic requirements from 2003 and will essentially require programs to adopt a day/night shift model for junior residents. Resident education has not changed appreciably over the past seven years despite massive changes in work schedules. Further work hour restrictions will only exacerbate this problem. The gradation of the restrictions according to seniority of resident might lead a number of institutions to have night float for interns and home call for senior residents. This would only serve to decrease the amount of oversight of patient hand offs by junior residents.

Furthermore, the effect these new restrictions will have on patient care is unknown. Many patients would not exchange a fatigued physician they know for a well-rested physician they do not know. Fatigue is only one aspect of the residency system that affects patient care, but the ACGME rules do not completely address other factors contributing to patient care. Residency programs will need to adapt more rapidly and effectively to continue to ensure adequate patient care.

While the quality of life during residency may be improved, the ultimate effect on future residents' life is yet to be seen. Many assume that the number of years spent in residency will need to increase in order to allow time to learn the volume of knowledge to be an effective clinician. Many physicians completing residency are already far behind their contemporaries in terms of accrued earnings but are far ahead in the amount of debt amassed. Lengthening the duration of residency will only impair our ability to recruit the truly exceptional individuals we seek to train.

We instituted the IOM recommendations in our surgical ICU shortly after they were published. The changes required to maintain adequate staffing required moving to a day/

night shift schedule. Our model of resident education changed dramatically. Prior to the change, daily teaching rounds were conducted with all residents assigned to our service. Brief lectures by the fellows were directed to the residents as time allowed. The conversion to shift work necessitated a drastic decrease in the number of residents available on day rounds. With fewer residents present, acute issues had to be dealt with by those involved in rounds further limiting the effectiveness of teaching rounds. Daily lectures could not be directed at the entire pool of residents, leading to fewer educational opportunities. To counteract this, we now have teaching rounds at night and have placed a series of lectures on critical care basics online for residents to view in their free time. While these are seemingly minor issues, the work flow in our unit changed substantially and the quality of information transfer was noticeably affected.

The additional work hour restrictions will soon produce a significant change in the way academic centers staff intensive care units. More mid-level providers will be required, which will further stress institutional resources. Since the general surgery RRC requires programs to provide residents with a certain number of cases but only require some experience in an ICU, we will likely see a decrease in the number of general surgery residents available to staff our units. Other residency programs will likely be forced to keep more of their residents “closer to home” as well. Staffing models will have to evolve quickly if and when such changes are made.

While the concept of improving residents’ lives is a worthwhile goal, work-hour restrictions have many unintended consequences. We must guarantee that patient care does not suffer and that resident education adapts quickly, all while ensuring that our career field remains an attractive option for the brightest young people.

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PRO: ACGME Work Hour Restrictions: Making Medical Training Humane

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for handover are somewhat primitive in their construct. Certainly there is opportunity to teach medical students, residents, fellows and faculty what comprises an appropriate handover. Unfortunately the handover between attending physicians is often done without the presence of trainees. There is also an element of tacit understanding involved in handovers between faculty members. Diagnoses like “septic shock”, “right heart failure”, or “acute hepatic failure” mean much more to us than they do to our trainees; we plug them into a construct of pattern recognition that allows those phrases to convey enormous amounts of information.

At our institution, we created an IOM-compliant model shortly after the recommendations were issued in 2008. The first transition was in our Anesthesia and Surgery Critical Care Fellowships, and it was

not without its bumps. We found out very early that, when enacting a shift work system in the ICU, the only reasonable substitute for the continuity of care that a 30-hour workday provides is a stretch of five to seven 14-hour shifts. The following year, we transitioned the residents to a similar system. Again, the transition was initially rocky, and again we found that stretches of five to seven 14-hour shifts worked best. Our unpublished survey data shows an improvement in the perceived work-life balance, perceived decrease in fatigue-related mistakes, and a decrease in traffic violations. In response to a perceived decrease in hours spent in didactic lectures, we changed lecture times to provide maximal overlap between day and night teams. Clearly, an element of culture change is necessary to be successful in this endeavor.

The reality is that, in the interest of minimizing redundancy of care, the number of

“patient contact hours” is bound to decrease. Because of the decrease in contact hours, the future likely holds an increase in the number of years of post-graduate medical training. However, in the meantime, it is our responsibility as physician-educators to maximize the yield of the years we have to train the physicians of the future. Streamlining protocols, developing handover tools, and maximizing the educational experience in the intensive care unit will improve patient safety and physician quality of life, as well as promoting the profession of the intensive care medicine as an attractive career choice, thus securing the future of our specialty.

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Fellowship Review I: Multidisciplinary Critical Care at Washington University School of Medicine and Barnes-Jewish Hospital



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The Multidisciplinary Critical Care Fellowship at Washington University and Barnes-Jewish Hospital is at the leading edge of a revolution in intensivist training and education. The ACGME-accredited program promises and delivers an exceptional experience remarkably rich in education, research, and leadership opportunities in this rapidly expanding field of medicine.

Home Base – The Surgical Intensive Care Unit

Barnes-Jewish Hospital is a tertiary referral center and Level I trauma center with a broad catchment area and an enormous scope of influence. Our patient base arrives from the entire state of Missouri and parts of every bordering state: Iowa, Illinois, Kentucky, Tennessee, Arkansas, Oklahoma, Kansas, and Nebraska. The surgical intensive care unit (SICU) is a closed ICU that comprises 24 beds allocated to an array of critically ill or injured surgical patients requiring pre-operative stabilization, post-operative intensive care after elective or emergency surgery, or critical care

following complications of surgical illnesses. Patients admitted to the SICU arrive from all of the surgical subspecialties, thus providing a broad base of experiences. Our intensivists hail from the disciplines of Anesthesiology, Surgery, and Emergency Medicine, and are consistently ranked among the top teaching faculty in the department of Anesthesiology.

Our fellows also spend a significant portion of their time in our state-of-the-art Cardiothoracic Intensive Care Unit (CTICU), a 21-bed unit devoted to the perioperative care of a diverse mix of routine and complex cardiac and thoracic surgical patients. Among other strengths, we have world-class lung transplantation, cardiac transplantation, ventricular assist device, complicated valvular repair and replacement, and aortic repair programs. Other intensive care units that play a significant role in our fellowship include our Medical ICU, Neuro ICU, Coronary Care Unit, and the Pediatric ICU at Saint Louis Children's Hospital.

The Educational Curriculum – Foundation and Innovation:

Our goal is to train our fellows for a future of leadership in critical care, and a sound didactic program underlies that goal. Our weekly Critical Care Lecture Series provides the foundation for a strong base of knowledge. Speakers from many disciplines participate, delivering a distillation of the most current thinking in all facets of critical care. As part of the Lecture Series, each fellow gives two lectures per year on the topics of their choice. At our monthly Journal Club, the faculty and fellows participate in what is invariably a lively discussion about an article in the most current literature. Our monthly Clinical Outcomes and Unit-Based Quality Improvement meetings provide a forum to discuss patient safety and opportunities to improve our delivery of care.

Innovations in the education of our fellows are constantly being explored. Currently we are collaborating with the nationally recognized

Clinical Simulation Center at the Washington University School of Medicine to develop novel approaches to fellow, resident, and medical student education. Additionally, our web-based critical care curriculum is growing by leaps and bounds every week.

Research Opportunities – Mentorship on the Cutting Edge:

The Department of Anesthesiology at Washington University School of Medicine is a national leader in research. We ranked first among departments of Anesthesiology nationwide with over \$7 million in National Institutes of Health funding. The School of Medicine ranked fourth in NIH funding with over \$350 million awarded in 2008. Clinical and Basic Science investigations occur in all of the subspecialty areas, and many include partnership with experts in other disciplines such as cardiology, hematology or endocrinology. Fellows are offered mentorship in developing their own research projects, as well as being encouraged to participate in ongoing research projects. All Research Seminars and Research Conferences are open to our fellows, and our monthly Clinical Research Group is a valuable source of project development ideas.

Putting It All Together:

Critical Care Medicine is a rapidly advancing subspecialty, and the Multidisciplinary Critical Care Fellowship Program at Washington University and Barnes-Jewish Hospital provides innumerable opportunities to help shape the future of the field. We hope that you will come to Saint Louis to visit our exciting program.

For additional information regarding the Multidisciplinary Critical Care Fellowship Program, please feel free to contact the fellowship director, Dr. Walter Boyle boylew@anest.wustl.edu, the associate fellowship director, Dr. Eliot Fagley fagleyr@anest.wustl.edu, or the program coordinator, Mrs. Barbara McKinney mckinneyba@anest.wustl.edu. We can also be reached by telephone at (314) 747-3581.

Fellowship Review II: Critical Care Medicine Fellowship at the University of Kentucky



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Fellowship Review:

The Critical Care Medicine fellowship within the Anesthesiology Department at the University of Kentucky can, perhaps, be best described as an expanding opportunity within a rapidly growing healthcare enterprise. While the entire hospital system at the University of Kentucky continues to mature (including the move to our new state-of-the-art patient care facility capable of providing space for up to 192 critically-ill patients), the division of critical care continues to drive excellence in education, continuous improvements in quality and safety, and the clinical care within the various intensive care units at the University of Kentucky.

The critical care medicine fellowship program, currently accepting one fellow per year,

is designed to provide a well-rounded critical care educational experience while developing fellows into full-time, dedicated intensivists capable of the various administrative, clinical, educational, and research responsibilities that occur in the “real world” of critical care medicine. The required clinical rotations include neurosurgical critical care, cardiothoracic and vascular surgical critical care, pulmonary critical care, trauma and acute surgical critical care, and pediatric critical care. Fellows are also given the opportunity to select from a large variety of electives, include (but not limited to) nephrology, echocardiography, hepatology, nutrition, infectious diseases, and transfusion

critical care grand rounds and critical care journal club will be held monthly. The Human Patient Simulator laboratory is also utilized for extensive one-on-one fellow and resident education.

In addition to these clinical and administrative experiences, fellows will also build their skills in developing research projects and evaluating scientific papers. Fellows are expected to participate in research studies and various quality improvement projects during their fellowship year, and it is expected that each fellow will be able to successfully complete at least one project with an accompanying presentation and publication.

“Education, as *the* key experience for the fellow, is interwoven throughout the clinical, administrative, and research requirements for all our critical care medicine fellows.”

medicine. Additional electives can be created at the request of the fellow to further their own personal academic or research interests.

Fellows are fully integrated into teaching and patient care teams as they coordinate (their responsibilities in this will increase throughout the fellowship to their own administrative abilities) daily true multidisciplinary working and teaching rounds (including residents, pharmacists, dieticians, therapists and many others), daily resident lectures, fellow’s conferences and monthly morbidity and mortality rounds. Additionally, multidisciplinary

Overall, it is a great time to be a critical care medicine fellow within the department of anesthesiology at the University of Kentucky. Education, as *the* key experience for the fellow, is interwoven throughout the clinical, administrative, and research requirements for all our critical care medicine fellows. For more information, feel free to contact Kevin Hatton, M.D. at kevin.hatton@uky.edu.

Case Report: Asystole After the Administration of Neostigmine and Glycopyrrolate for the Reversal of Non-depolarizing Neuromuscular Blockade in a Patient With Cardiomyopathy

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Case Report

A 65-yr-old, 86-kg woman was scheduled for atriovenous fistula (AVF) creation with brachio-basilic vein transposition of the left arm. She had hypertension, diabetes mellitus (DM) type 2, end-stage renal disease (ESRD), peripheral vascular disease (PVD), coronary artery disease (CAD) and ischemic cardiomyopathy.

Her past surgical history included cholecystectomy 15 years ago, coronary artery bypass graft (CABG) surgery 6 yrs ago, and right below knee amputation (BKA) 5 years ago. All procedures were done under general anesthesia (GA) with no reports of complications. The patient's medications included metoprolol, glipizide, clopidogrel, dipyridamole, and lansoprazole. She had no allergies.

Preoperatively her heart rate (HR) was 78 beats/min, and blood pressure (BP) 116/69 mmHg. Laboratory testing showed a hematocrit of 38%, plasma sodium 145 mEq/L and potassium 4.8 mEq/L. A 12-lead ECG showed normal sinus rhythm, and echocardiography a left-ventricular ejection fraction (LVEF) of about 18%.

In the operating room (OR) the patient had the standard ASA monitors applied, preoxygenated with 100% via facemask, and then GA was induced using divided doses of intravenous (IV) midazolam 2mg, fentanyl 250mcg, etomidate 40mg, and cis-atracurium 10mg. Endotracheal intubation was uneventful. Anesthesia was maintained with inhalational isoflurane 0.5-1% with an additional dose of fentanyl 50mcg, IV. The patient was hemodynamically stable throughout the surgery, which lasted about 2 hrs, with a

HR 65-75/min and BP 90/40-110/70mmHg. At the conclusion of surgery, inhalational isoflurane was discontinued and reversal of NMB was achieved by the administration of a mixture (in one syringe) of neostigmine 3mg and glycopyrrolate 0.6mg, IV (after detecting partial recovery from NMB by nerve stimulator. At the time of administration of reversal agents, the HR was 70beats/min, BP 100/68mmHg, and O₂ saturation 100%. Within a minute,

to keep the patient intubated post-operatively until fully recovered from this event. The patient was transferred intubated to the post-anesthesia care unit (PACU) for further care.

In the PACU, initial sedation was provided using midazolam 3mg IV in divided doses, and fentanyl 100mcg IV, followed by infusion of midazolam 1mg/hr. Next morning, the patient was weaned off sedation and mechanical ventilation and successfully extubated.

“Based on the severity of the hemodynamic event, the surgeon considered the possibility of excessive shunting via the established AVF, reopened the wound and performed partial ligation of the AVF.”

the HR was noted to fall to 38-39 beats/min, which was treated with the administration of atropine 1mg IV, yet the bradycardia persisted and progressed to asystole. Resuscitation according to Advanced Cardiac Life Support (ACLS) protocol was initiated, including ventilation with 100% oxygenation via endotracheal tube, chest compressions, and 2 doses of epinephrine 1 mg, IV. Also, because of the possibility of hyperkalemia and metabolic acidosis in a patient with ESRD, one dose of sodium bicarbonate 50 mEq was administered IV.

After approximately 8 minutes of resuscitation, the patient recovered sinus rhythm, with a HR of 123/min, and a BP of 143/73mmHg. This hyperdynamic state resolved over several minutes and the patient was awake with no neurological deficit. Based on the severity of the hemodynamic event, the surgeon considered the possibility of excessive shunting via the established AVF, reopened the wound and performed partial ligation of the AVF. At the conclusion the procedure, it was decided

She had no neurological or cardiovascular complications secondary to the asystole; she underwent hemodialysis (HD) uneventfully and was later transferred to the step-down unit. She remained hemodynamically stable with no subsequent rate or rhythm disturbances until she was discharged from the hospital.

Discussion:

The administration of anticholinesterase and antimuscarinic drugs for the reversal of non-depolarizing NMB may cause dysrhythmias. These arrhythmias are generally short lived and benign but could be significant in patients with autonomic neuropathy, particularly those with cardiomyopathy. These dysrhythmias can take the form of tachyarrhythmias or bradyarrhythmias depending on whether the anticholinesterase (brady-) or anticholinergic (tachy-) agent has the predominant effect. The occurrence of these dysrhythmias is influenced by many factors including pharmacologic properties of reversal agents, the patient's comorbid conditions and on-going drug therapy.

I. Pharmacologic Properties of the Reversal Agents:

The pharmacologic effect of an anticholinesterase agent such as neostigmine on the heart is to increase the availability of acetylcholine at the muscarinic cholinergic receptors in the heart resulting in bradyarrhythmias, while the opposite effect is produced with the administration of antimuscarinic agents such as glycopyrrolate, which block the effect of acetylcholine at the muscarinic receptors resulting in tachyarrhythmias. In using these drugs for the reversal of action of non-depolarizing NMBs, the anticholinesterase agent is used for its effects on the nicotinic cholinergic receptors at the skeletal muscles, which is the desired effects; while the anticholinergic agent is used to block the undesirable muscarinic side effects that result from the use of the anticholinesterase agent. In most patients, this combination works well to achieve the desired effect with little side effects. The most common

of 5:1 is optimal for reversal of NMB,² and this was again supported by Salem and Ahearn in a later study.³

II. The Patient's Co-morbid Conditions:

1. Cardiac Disease

In patients with no cardiac disease the occurrence of bradycardia or tachycardia in conjunction with the reversal of non-depolarizing NMB is rare, and when it occurs it is usually short lived, easily reversible, and non-life threatening. However patients with cardiac disease are at greater risk of serious dysrhythmias. Muravchick et al found that geriatric patients with pre-existing cardiovascular disease have increased risk of dysrhythmias following reversal of neuromuscular blockade.⁴

Mostafa et al suggested that the use of glycopyrrolate is more suitable than atropine in patients with cardiovascular disease, because it is associated with significantly lower risk of dysrhythmias.⁵ Tachyarrhythmias

reversal of neuromuscular blockade in a patient with long QT syndrome.⁷ On the other hand, severe bradycardia, complete heart block and asystole, has been reported in patients with cardiac disease, with the majority being in heart transplant patients with denervated hearts.^{8,9} Our patient had significant cardiomyopathy with an LVEF of 18%. To our knowledge, this is the first case report of asystole following the administration of neostigmine and glycopyrrolate in a patient with severe cardiomyopathy.

2. Diabetes Mellitus and Autonomic Dysfunction

Autonomic dysfunction, such as that seen in patients with DM, has been associated with increased incidence of perioperative hemodynamic lability,^{10,11} and cardiac dysrhythmias in response to myocardial ischemia.¹² Patients with autonomic neuropathy may remain asymptomatic until they encounter physiologic or pharmacologic stress. It is quiet possible that the presence of long-standing DM in this patient was associated with a certain degree of cardiac autonomic neuropathy, predisposing to dysrhythmogenic effects of neostigmine and glycopyrrolate.

3. Renal Failure

Dhonneur et al found that renal failure does not prolong the duration of a single dose of the non-depolarizing NMB agent vecuronium, nor the duration of the reversal of the NMB by the administration of neostigmine. Therefore, the authors suggested that the NMB effect of an intubating dose of vecuronium could be reversed at the same rate in patients with ESRD as in patients with normal kidney function.¹³ However these findings do not exclude the likelihood of increased risk of neostigmine-induced bradyarrhythmias due to altered metabolism of the drug and a co-existing autonomic neuropathy. Webb et al reported a case of second-degree heart block following the administration of neostigmine in a patient with renal failure.¹⁴

“To our knowledge, this is the first case report of asystole following the administration of neostigmine and glycopyrrolate in a patient with severe cardiomyopathy.”

practice of administering this combination is to mix the two drugs in one syringe, at the desired doses, and administer them together. The most common anticholinesterase agent used for that purpose is neostigmine and the most common anticholinergic is glycopyrrolate. The usual dose of neostigmine is 50-70 mcg/kg of body weight, and the dose of glycopyrrolate is 10 mcg/kg. This dose of glycopyrrolate was found by Mirakhur et al to be associated with the most stable heart rates when administered with neostigmine.¹ While Goldhill et al found that a neostigmine/glycopyrrolate dose ratio

are more common than bradycardias and are usually well tolerated, however they can pause significant risk in patients with CAD, aortic stenosis, or idiopathic hypertrophic subaortic stenosis (IHSS). Some patients may be at greater risk of tachyarrhythmias based on their underlying cardiac disease. Kadoya et al reported a case of neostigmine-induced atrial fibrillation (A-fib) requiring synchronized DC cardioversion in a patient with Wolff-Parkinson-White (WPW) syndrome.⁶ Pleym et al reported a case of ventricular fibrillation following

III. Ongoing Drug Therapy:

1. Beta-blocker Therapy

Perioperative beta-blocker therapy has been reported to reduce the risk of stroke and cardiac events in hypertensive patients.^{15,16} On that basis, the American Heart Association guidelines recommended the administration of beta-blockers perioperatively for a large group of patients.¹⁷ However, subsequent studies have questioned the benefit of perioperative beta-blockade therapy and provided some evidence of harm from such therapy.¹⁸ Regardless of the overall benefit or harm of peri-operative beta-blockade, it is quiet possible that such therapy may accentuate the risk of bradyarrhythmias in a patient with cardiomyopathy and other risk factors for autonomic neuropathy. Our patient had been on chronic beta-blocker therapy with metoprolol. Salem et al found that perioperative beta-blockade in patients undergoing open-heart surgery did not affect the incidence of arrhythmias induced by reversal on neuromuscular blockade but it did attenuated the vagolytic effect of the anticholinergic drugs on the heart rate, this attenuating effect was not different for atropine or glycopyrrolate when used in mixtures with neostigmine.¹⁹ Our patient had been on chronic beta-blocker therapy with metoprolol. Weather this was a factor contributory to the events leading to bradycardia and asystole following NMB reversal is still unclear.

Conclusion:

The patient with cardiomyopathy maybe at increased risk of the bradyarrhythmic effect of anticholinesterase agents such as neostigmine. Autonomic neuropathy due to DM or end-stage renal disease may pose additional risk factor for cardiac dysrhythmias. Concomitant beta-blockade may accentuate the bradyarrhythmic effects of other physiologic and pharmacologic factors. Any or a combination of these factors may have contributed to the development of asystole in the presented patient. We believe that the patient's underlying ischemic cardiomyopathy is likely to be the major contributing factor the occurrence of bradycardia and asystole after the administration of a mixture of neostigmine and glycopyrrolate for the reversal of non-depolarizing neuromuscular blockade.

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Hypoglycemia Is Associated With Intensive Care Unit Mortality



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Intensive insulin therapy has been a widely accepted treatment modality in the management of critically ill patients in the last decade. A number of studies published to date confirmed the benefits. However, there is a high incidence of hypoglycemic episodes while on insulin drips. The NICE - SUGAR trial data indicated that intensive insulin therapy was associated with a six fold increased risk of severe hypoglycemia. Several studies to date have reported conflicting effects of hypoglycemia on morbidity and mortality in the ICU setting. The objective of this retrospective database cohort study was to determine if hypoglycemia, related to intensive insulin therapy is associated with mortality in an intensive care unit setting.

Study design: Retrospective database cohort study (n = 5961) in a mixed surgical/medical ICU teaching hospital.

Methods: The SOFA (Sequential Organ Failure Assessment score) was used to adjust for the severity of a disease over time. Hypoglycemia was defined as glucose level < 45 mg/dl; Patients were treated with a computerized insulin algorithm with target glucose range of 72-126 mg/dl. The incidence rates for intensive care unit deaths and the incidence rate ratio comparing exposure and non-exposure to hypoglycemia were calculated using Poisson regression.

Results: The patients who experienced hypoglycemic event were 2.3 times more likely to die in the ICU than those who had normal glucose, crude IRR 2.3 (95% CI 1.8 - 3.1). After adjusting for confounders: SOFA scores, age, gender, admission for cardiothoracic surgery, sepsis, ICU days and the interaction between SOFA score and ICU days, the adjusted IRR was still significantly higher in those patients who experienced hypoglycemia, IRR 2.1 (95% CI, 1.6- 2.8; p <0.001). In addition, there was an increased risk for ICU death up to a cutoff value of 85 mg/dl (adjusted IRR 1.4; 95% CI, 1.1 – 1.8; p = 0.006). The rate of hypoglycemia was low 4.8% (288/5961).

Conclusion: The results of this study indicate that there is a strong association between hypoglycemia and ICU death. Sofa score appears to be an alternative predictive score that could be assessed over time. The authors suggested that the injury from hypoglycemia in an ICU setting is likely to be sustained. It appears that hypoglycemia up to 85mg/dl was associated with a significant risk for ICU death. These findings highlight the significance of hypoglycemia in an ICU setting and also ask an important question as to the “safe” range of glucose control.

This is a single center study which limits generalizability, however data collection was of high quality.

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ASA Delegate's Report



Mark E. Nunnally, M.D.
Daniel R. Brown, M.D., Ph.D.

As the governing body for the American Society of Anesthesiologists (ASA), the ASA House of Delegates met October 17 and 20 in San Diego during ANESTHESIOLOGY 2010. The book of reports for the meeting reached a record 1,927 pages, more than 500 pages longer than the infamous Stimulus Bill passed by Congress in 2009. It was no surprise that this year's House session contained some contentious measures. Before it was over, there was more surprise than anticipated.

Several items will be of interest to the SOCCA membership.

A measure to place the SOCCA president on the ASA's Committee on Critical Care Medicine, passed at the March Board of Directors meeting, was formally approved in the House. This measure, amended to include all subspecialty society presidents on their respective ASA committees, should help harmonize activities and bring ASA and its subspecialty societies closer together in mission and action. The chair of the Committee on Critical Care Medicine also serves as an *ex officio* member of the SOCCA Board of Directors.

The Committee on Standards and Practice Parameters was particularly active in the last year. Their report included a measure for central venous access. Many of you may have seen the draft. It was available on the ASA website for several weeks to generate comment. A lot of effort went into the generation of this

document; a lot of testimony demonstrated just how controversial and difficult its drafting and formal passage will be. Ultimately, this measure was disapproved and will return to its committee for further refinement. One particular part of the measure proved especially contentious- the recommendation for static ultrasound before internal jugular line placement. This measure will likely come back next year, so stay tuned.

In response to a late fee increase from the ASA for management of subspecialty societies, your delegation, with the help of the leadership and delegation of the Society for Neuroscience in Anesthesia and Critical Care, put an emergency resolution, 675-7, Suspension of Proposed Fee Increase, before the House during the Sunday session. The purpose of the resolution was to freeze what would have been a 20% increase in service fee and call for the ASA to consider its support of subspecialty societies "in a manner consistent with the support of its Foundations in furthering the greater mission of the specialty of anesthesiology." The resolution was accepted for deliberation in reference committee, where many of the SOCCA officers and other subspecialty society representatives offered testimony in support of the freeze. In spite of this support, the reference committee recommended disapproval of the resolution.

It seemed that the measure was lost until the Wednesday session when it was not only extracted from the reference committee report, but ultimately approved by a motion for division in the house. During the proceedings, it was clear that there was a groundswell of support for the subspecialty societies. Many contributed to this success; special thanks go to Gerald Maccioli, M.D., F.C.C.M. for his sage advise and expert shepherding of the resolution, and Hector Vila, M.D., chair of the ASA Committee on Subspecialties, for his testimony at reference committee and on the floor of the House of Delegates.

Officer elections were all uncontested this year. ASA officers for 2010-2011 are:

President: Mark A. Warner, M.D.
President-Elect: Jerry A. Cohen, M.D.
Immediate Past President: Alexander A. Hannenberg, M.D.
First Vice President: John M. Zerwas, M.D.
VP Scientific Affairs: Arnold J. Berry, M.D., M.P.H.
VP Professional Affairs: Robert E. Johnstone, M.D.
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Assistant Secretary: Linda J. Mason, M.D.
Speaker: John P. Abenstein, M.D.
Vice-Speaker: Steven L. Sween, M.D.

Representation in the House is an important right of the Society. We have done our utmost to make use of this privilege and count ourselves as an active participant in ASA governance. It is an honor to represent SOCCA.

Mark E. Nunnally, M.D.
Daniel R. Brown, M.D., Ph.D.

Fellowship Program Directors' Breakfast Symposium



Benjamin Kohl, M.D.
University of Pennsylvania

The 13th Annual Program Directors' Breakfast Symposium, co-chaired by Drs. Theresa Hartsell (Johns Hopkins) and Benjamin Kohl (Penn), was held on Saturday morning.

Dr. Neil Cohen (UCSF), Chair of the Anesthesiology RRC, began the session by reviewing the status of anesthesia critical care training programs. This year there are five new programs, and an increased number of fellows (92 when compared to 61 previously) although a lower percentage of women (24%). Fifty-one percent of fellows are graduates of US training programs, and a substantial portion of the increase in fellows is due to rising enrollment of emergency-medicine trained individuals. Anesthesia CCM has the highest program director turnover rate, often with the new program director being junior faculty, and so the RRC is frequently asking that a mentor be identified to ensure success. In addition, more programs are using outside ICUs, with difficulty in managing faculty and didactics at outside sites being noted. Primary issues with accreditation have been due to interactions and relationships (ACCM-surgery and ACCM-medicine), with common citations focusing on issues of institutional support, scholarly activity of fellows, evaluations, and curricular

development. An increasing importance is being placed on the fellow survey as a screening tool, particularly to identify concerns with intimidation, service vs. education, and adequacy of resources/facilities.

The RRC focus for critical care fellowships, in concert with the new duty hours standards, involves supervision and the development of graded responsibility toward independent practice. Programs need to show that fellows first gain their own competence, then are able to supervise others, and need to evaluate when fellows are able to be *indirectly* supervised. Going forward, the Patient Care competency will be subdivided into Patient Care and Procedural Skills to assist in specific goals and objectives.

Drs. Cohen and Douglas Coursin (Wisconsin) discussed RRC and ABA interactions with other critical care sub-specialties. The ACGME is brokering a spring meeting with representatives from internal medicine, anesthesiology, surgery, and pediatrics to facilitate ongoing dialogue with the boards and RRC chairs about interdisciplinary training in CCM. This is timely given emergence of the Internal Medicine RRC stance restricting the role for any non-IM faculty in supervision of residents and fellows in Medical ICUs. Extensive discussion ensued over this, as well as over concerns from some programs that the advent of acute care surgery fellowships is leading to surgeons claiming need for absolute unit directorship.

Dr. Coursin indicated that the ABA-ABS joint exam initiative is proceeding slowly but does continue. Dialogue with the ABEM is likely to resume given the increasing number of EM individuals approaching anesthesia programs; the proposed route for certification through internal medicine has not yet been approved by the American Board of Medical Specialties. In addition, a combined residency program leading to board certification in anesthesiology and internal medicine over a 5 year continuum is being considered.

Dr. Rob Sladen (Columbia) took the floor in his role as the Chair-elect of the Association of Anesthesiology Subspecialty Program

Directors (AASPD.) Over the past year, although the desire for a common program application for anesthesiology fellowships continues, a move to ERAS as a vehicle has largely been abandoned because of differing needs of the various fellowships. ACCM as a group does not have the numbers to approach this as an individual subspecialty. Some of the other fellowships have created sub-specialty specific common application processes and timelines, which may be appropriate for us. Dr. Hartsell announced that the ASCCA board has created an ad hoc fellowship education committee which will focus initially on creating a robust communication mechanism for all ACCM program directors, with anticipation that a listserv will be in use within the next month.

The program was then turned over to Dr. Kohl who led a discussion on the evolving technologies and need for fellowship training in echocardiography. First and foremost, Dr. Kohl suggested that our concept of 'perioperative echocardiography' should be broadened to 'critical care ultrasound.' Whereas it appears that many of our current training programs provide exposure (and some a pathway to certification) to cardiac (primarily transesophageal) echocardiography, few are formally training our fellows in the broader field of ultrasound. With improving technology and profound portability, all agreed that there would be an increased reliance on ultrasound for intensivists in the coming years.

Dr. Kohl first reviewed the current position of several of our sister societies, including ASA, SCCM, and SCA. While ASA makes no mention of echocardiography or ultrasound in their documents describing Critical Care Medicine and 'Guidelines for the Practice of Critical Care by Anesthesiologists' (both can be found on ASA website), they have taken the initiative to publish a joint statement with the SCA on 'Practice Guidelines for Perioperative Transesophageal Echocardiography' (Anesthesiology 2010; 112)

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ASCCA Annual Meeting Recap: Mentorship Program



R. Eliot Fagley, M.D.
Washington University School of Medicine, St. Louis
Assistant Professor, Anesthesiology and Surgery
Divisions of Critical Care and Cardiothoracic Anesthesiology
Associate Director, Anesthesiology Critical Care Fellowship

Once again, we had a very successful mentorship program at the ASCCA Annual Meeting in San Diego in 2010. The program has continued to be one of our most successful recruiting endeavors, giving faculty members from around the country the opportunity to connect with trainees considering careers in critical care anesthesiology. This year, there were three facets of the mentorship program: facilitated poster session viewing in the morning, lunch, and a round table question and answer session.

As usual, the facilitated poster session was incredibly educational, allowing mentors and trainees to review the research being presented. It also gave mentors and trainees the opportunity to discuss projects and findings they found particularly interesting. The posters also acted as a kind of scientific "ice breaker."

After the morning session of lectures, mentors and trainees then met up again for lunch which provided a much more informal setting, and an opportunity to discuss the very interesting lecture on battlefield regional

anesthesia given by Dr. Buckenmaier. His lecture was quite provocative, and it made many of us wonder if we are under-utilizing regional methods in critical care as well.

Once the lectures for the day were concluded, a few of us from the mentorship committee, Hannah Wunsch, Michael Woo, Anush Minokadeh, Mike Wall, and I, met with the trainees in a round table discussion to talk about critical care training, practice, and the future. Originally scheduled as a one-hour meeting, the group was quite enthusiastic. We answered questions about the types of jobs that exist, how our own practices are structured, and the different types of training programs that exist. All 16 trainees in attendance at the meeting remained highly engaged throughout, asking questions and providing each other with guidance.

We on the Mentorship Committee thank the membership of the ASCCA for your continued support, but most importantly, we thank the trainees, whose enthusiasm makes this committee a joy to serve.

Fellowship Program Directors' Breakfast Symposium Continued

Continued from page 17

where they emphasize the utility of this modality not only in cardiac surgery, but "...noncardiac surgery, and post-operative critical care." The SCCM has begun emphasizing the importance of ultrasound and now sponsors an annual course focusing not only on echocardiography, but ultrasound techniques to assist with hypovolemia, hemodynamic measurements, lung ultrasound, vascular access, and the FAST examination (to name a few). The ASCCA has yet to formally take a position on this issue; however everyone agreed that it was important we do so.

Dr. Kohl reviewed some of the recent literature on the utility of ultrasound as well as those addressing certification and training in ultrasound. It was pointed out that our European

colleagues are far ahead of us regarding formalizing training programs and developing certification for trainees. A recent editorial emphasized, "Critical care echocardiography has very little penetration into critical care practice in the USA...training of fellows and attending physicians is becoming a reality in the USA and will inevitably become widespread..... All intensivists should be trained to perform 'focused' echocardiography examinations which answer specific questions...." (*Intensive Care Med.* 2008; 34: 215-217).

Finally, a lengthy discussion ensued where program directors reviewed their individual program experience with ultrasound. There was overwhelming consensus that our society must begin to formally address this issue. Suggestions included developing a Committee on Critical Care Ultrasound, publication of a

consensus statement, and development of an Ultrasound course (possibly held at our annual meeting). Options of partnering with one of our sister societies (i.e., SCCM) were also discussed. Lastly, Drs. Cohen and Coursin suggested that we consider formally adding to our program requirements as well as to the Content Outline of the ABA Subspecialty Certification in Anesthesiology Critical Care examination a section on critical care ultrasound.

As a wrap-up, Dr. Kohl agreed to take the lead in this initiative. He will, with approval of the board, lead a committee to address these issues. Additionally, he will discuss with our incoming president, Dr. O'Connor, publication of a societal position statement. He encouraged anyone interested in helping or becoming more involved to contact him at: Benjamin.Kohl@uphs.upenn.edu.

ASCCA 23rd Annual Meeting Recap



Laureen Hill, M.D.
Andrew Rosenberg, M.D.
Co-Chairs, Committee on Annual Meeting

The ASCCA 2010 Annual Meeting was held in San Diego, California, on Friday October 15 with a new record attendance of 251 registrants, including 17 fellows, 11 FAER Scholars and 14 anesthesiology residents. Following a continental breakfast, Drs. Laureen Hill and Andrew Rosenberg opened the session and welcomed Dr. Ross Blank as moderator of Session I. Dr. Arvind Palanisamy started the session with an update on obstetrical critical care, reviewing management principles for the critically ill parturient. Dr. Charles Weissman then discussed obesity in the ICU and postoperative care of the bariatric patient. The session concluded with Dr. Andrew J. Patterson who provided a comprehensive update on new pharmacologic agents for the treatment of atrial fibrillation, acute hypertension, hyperuricemia in tumor lysis syndrome, and the use of prothrombin complex concentrates and second generation thrombopoietic agents.

The Celebrating Science Session began with a facilitated poster session where 31 outstanding posters were presented and moderated by Drs. Walter Boyle, Brenda G. Fahy, William E. Hurford, Aryeh Shander and Avery Tung. This was followed by the ASCCA-FAER Physician Scientist Award Lecture by Dr. R. Blaine Easley who presented his work on molecular mechanisms of regional lung dysfunction in ventilator-associated lung injury. The Young Investigator Award was presented by Dr. Michael F. O'Connor to Dr. Marina Yamada for her study entitled "iNOS Inhibition Prevents Muscle Wasting, Apoptosis and Decreased Akt Activity in Burned Rodents."

The Burchardi Award for an internationally recognized intensivist who has contributed to the continued development of critical care was presented by Drs. Todd Dorman and William Hurford to Dr. Heidi Kummer. The Lifetime Achievement Award was awarded to Dr. M. Christine Stock and presented by Dr. William Peruzzi. In her address, Dr. Stock reviewed the history of positive pressure ventilation and discussed various modes of ventilation that allow for spontaneous breathing. The morning's session concluded with a presentation by Dr. Mark Warner, ASA President Elect.

During the lunch hour, attendees were treated to a presentation by Dr. Chester "Tripp" Buckenmaier III on "Regional anesthesia in austere environments and battlefields: lessons learned from Iraq and Afghanistan". In his presentation, Dr. Buckenmaier discussed

on the perioperative care of the patient with pulmonary thromboembolism and chronic thromboembolic pulmonary hypertension by Dr. William C. Wilson.

Following the afternoon breakout, Dr. Neal H. Cohen discussed education goals for resident and fellow ICU training, challenges in achieving these goals, changes in duty hours being proposed by the ACGME and credentialing and scope of practice issues for critical care anesthesiologists. The final session of the meeting included the lively and interactive "ICU Rounds" moderated by Dr. Douglas B. Coursin in which several ICU cases were presented and relevant management questions for each case were posed to the audience for response and discussion.

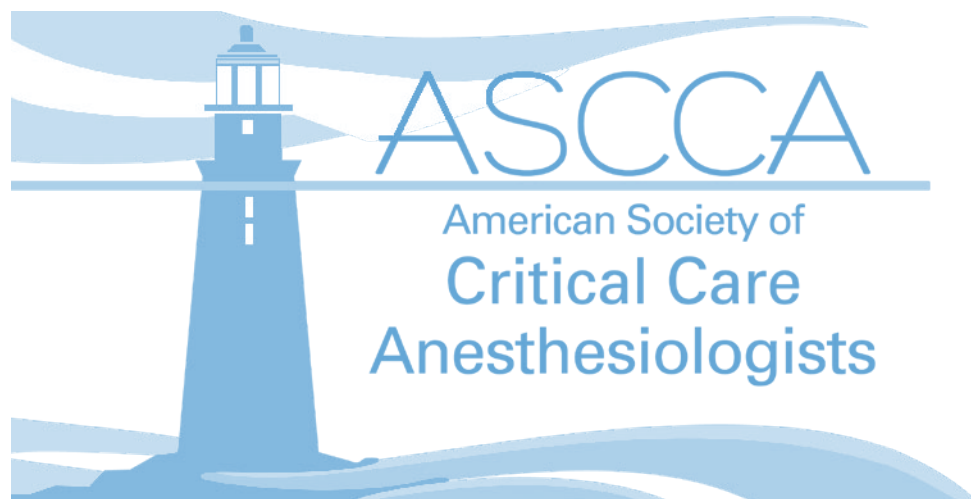
The ASCCA Mentorship program, under the leadership of Dr. Michael Avidan, enjoyed

"The ASCCA Mentorship program, under the leadership of Dr. Michael Avidan, enjoyed another successful year with the participation of 20 anesthesiology / critical care trainees who were paired with faculty mentors for the day."

the levels of medical care in the US military and emphasized both the importance and difficulties in managing acute pain in the combat wounded. In particular he discussed the novel use of regional anesthetic techniques in these situations, and emphasized that lessons learned in academic/clinical practice are the basis for this work.

The afternoon session opened with a pro-con ethics presentation on "Donation After Cardiac Death." Discussants were Drs. Nicholas Sadvnikoff and Michael F. O'Connor with Dr. Robert N. Sladen moderating the questions and discussion following the presentations of opposing perspectives. Session II was moderated by Dr. Steven Deem and included an update on care of the HIV/AIDS patients in the ICU by Dr. Sylvia Y. Dolinski and a discussion

another successful year with the participation of 20 anesthesiology / critical care trainees who were paired with faculty mentors for the day. The participants met at the conclusion of the educational session before attending the wine and cheese reception held following the ASCCA business meeting.



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* NOTE: This committee consists of the Immediate Past President (Chair of the Committee), the President and the President-Elect and at least one Director.