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Connect with SNACC via Social Media!
President’s Message
Supporting Our Young Members

W. Andrew Kofke, MD, MBA, FCCM, FNCS
SNACC President

The leadership of SNACC has understood for some time the importance of supporting our younger members. This happens in many ways. I have summarized below most of the opportunities and benefits for younger members who join and become involved in SNACC.

1. Dues benefit. The standard cost of an active membership without the Journal is $175.00 annually. For residents, fellows, and students this is reduced to $25.00 annually. Even more benefits may be available if they are members of the ASA Medical Student Council (see below).

2. Meeting registration. The standard early bird cost of registering for the Annual Meeting is $340.00 for members and $490.00 for non-members. For residents, fellows and students this is reduced to $170.00 for members and $290.00 for non-members and is even less for ASA Medical Student Council participants. This amount represents less than the per capita cost of running the meeting, but it’s worth it.

3. Annual Meeting activities oriented to younger members:
   a. Mentoring Workshop. This is an annual event with a focus which varies somewhat from year-to-year. It is generally set up with experienced SNACC members providing brief interactive presentations and available to provide advice to early career members. This is generally oriented to academics but many topics can also include clinical development.
   b. Neuroanesthesia Review Session. This is new this year. During the SNACC business lunch there will be a session oriented to younger members overviewing topics relevant to neuroanesthesia.
   c. Travel Awards. Generally with industry support SNACC provides grants to defray travel costs for young members presenting abstracts deemed to be among the best of the meeting.
   d. IARS Best Neuroscience Poster Award. This is presented at the SNACC meeting to the young member who was judged to have given the best neuroscience poster at the prior IARS meeting.
   e. Michenfelder Award. This prestigious SNACC award, named after the first SNACC President, is presented to one young scientist at the Annual Meeting. It entails submitting an abstract and a brief manuscript summarizing a scientific project. It is very competitive with a cash award. The winner of the award is selected by the SNACC scientific affairs committee and is honored at the business luncheon. He/She will give a brief oral presentation of the work at the luncheon and also present a poster presentation. A recent summary of awardees since 1981 was listed in my 40th anniversary JNA article.¹

4. Social Media. This is clearly a younger generation innovation and also for everyone else who is young at heart. SNACC’s communication committee has led the use of LinkedIn, Facebook and Twitter and is working with the education committee to develop content. All neuroanesthesia fellows are invited to post scientific news and opinion. Indeed, I have asked my Fellows to periodically post updates on abstracts presented at the SNACC Annual Meeting. Every anesthesiology resident and registrar worldwide should be active in SNACC’s social media.

5. Educational activities. Review of the SNACC home page reveals the extent to which the SNACC education committee has been active in presenting educational opportunities for all SNACC members, although perhaps of most interest to students, residents, and fellows. Offerings in this month’s overview of educational opportunities are summarized in the figure. The SNACC home page also includes a link to a very helpful EEG review about ICE-TAP for anesthesiologists. It’s very helpful. In addition, the education committee has been closely involved with several panels at other society’s meetings including NCS, IARS, ISNACC, and the World Congress of Anesthesiologists.
6. ASA Medical Student Component (MSC). SNACC and the ASA MSC are actively developing a relationship which should enhance the opportunities of medical students who are involved with the MSC to become more involved with SNACC. Participating students will be eligible for reduced Annual Meeting registration, or free registration if they have a poster accepted for presentation, also making them eligible for a travel award. MSC members will also be eligible to attend the Thursday mentoring workshop free of charge and will be enabled to attend the Friday neuroanesthesia review session.

7. Fellowship support. SNACC has promoted neuroanesthesia fellowships since its inception. This was fully reviewed in my history of SNACC article.¹ SNACC invested perhaps a decade or more researching fellowships,² debating the merits of organized fellowships,³,⁴ and publishing proposed guidelines for fellowship curricula.⁵ Moreover, the SNACC web page provides a listing and a Google map on the SNACC home page of U.S. neuroanesthesia fellowships. More recently, SNACC has submitted an application for membership in the United Council of Neurologic Subspecialties, by which SNACC has submitted a proposal for a national U.S. system of accreditation of neuroanesthesia fellowships. Once this is accomplished, we may be in a position to support international colleagues who want to set up similar systems.

8. William Young Research Award. Dr. Young was a brilliant neuroscientist with decades of interest and leadership in SNACC. In his memory, SNACC has developed a research fund, still growing and accepting donations, to support young investigators in SNACC. Invitation for applications for the first award has been recently announced. The amount is small and we hope continued donations will allow the award amount to increase. This initial disbursement should support startup sorts of activities to prime new ideas for research projects.

References:
3. Kofke WA. The ucns pathway—something for now?? SNACC Newsletter. 2008;36:3-4

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Editor’s Corner

Reza Gorji, MD, Editor
Fenghua Li, MD, Assistant Editor

We hope that you have been finding your SNACC newsletter useful.

If you have any suggestions, we would love to hear from you. Comments from our readers help us improve the newsletter and keep it relevant to their needs. We invite you to send us any thoughts or concerns you may have by contacting either one of us (rgorji@gmail.com and lif@upstate.edu). Contributions are always welcome and strengthen the newsletter.

This issue of the newsletter is full of useful information brought to you by multiple experts in the field of neuroanesthesia and neuroscience. SNACC appreciates their contributions to the field and the society itself.

Thank you for being a SNACC member. SNACC appreciates your membership and support.

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Call for Abstracts

Abstracts are now being accepted for the

SNACC 44th Annual Meeting

October 20-21, 2016
Chicago, Illinois

Abstracts will be accepted through Monday, May 2, 2016 at 11:59:59 pm EDT.

CLICK HERE to access the SNACC abstract submission site.
Outcomes in health care depend on effective team performance. The role of effective teamwork in accomplishing optimal desirable outcomes for neurosurgical patients is also well recognized. The Advisory Committee on Interdisciplinary, Community-Based Linkages (ACICBL) recommends that all health professions schools implement curricular changes to equip future health professionals with the knowledge and skills to understand and address the health needs of populations by employing an interprofessional approach. However, the ability of individuals to successfully contribute to team success relies substantially on the ability of the team members to understand the responsibilities and expectations of other team members. Moreover, interdisciplinary training is important not only in enhancing direct clinical care but also in promoting academic interaction, research collaboration and advancing medicine in general. In fact, the Institute of Medicine’s Forum on Neuroscience and Nervous System Disorders convened a workshop recently to explore future workforce needs and strategies to inform training programs about these needs. While the primary focus of this workshop was to identify new subdisciplines and collaborations that might be needed, including opportunities for cross-training of neuroscience research programs; it did also address the importance of cross-training in clinical neuroscience. Not surprisingly, the Accreditation Council for Graduate Medical Education (ACGME) now requires the neurosurgery residents to be trained in airway management, central venous line placement and arterial line placement (ten each) to successfully complete the training. These various factors led us to initiate a four week neuroanesthesiology rotation for the neurosurgery interns at the University of Washington (UW), in Seattle, since 2013. So far, nine interns have completed this rotation. In addition to helping meet the ACGME requirements, the neuroanesthesiology faculty took this opportunity to familiarize the neurosurgery residents with neuroanesthesia workflow and educate them about perioperative anesthetic management for neurosurgical patients, provide evidence-based education on neurophysiology, neuropharmacology and neuromonitoring, encourage academic exchange as well as expose them to the depth and width of research contributions of neuroanesthesiologists. Here, we present a brief description and our experience with this rotation.

**Description of the Rotation**

This is a four week rotation and the interns are assigned to participate in the anesthetic management of neurosurgery/interventional neuroradiology cases under the supervision of attending neuroanesthesiologist along with the neuroanesthesiology fellow/senior anesthesia resident. They are expected to perform preanesthetic evaluation of assigned cases and discuss with the supervising attending and the fellow/resident. The interns work with the fellow/resident to prepare for the case including setting up the necessary drugs and equipment. They are taught airway management and line placement under direct supervision. A majority of the intraoperative learning occurs by

**Figure 1. Neuroanesthesia Topic Card for Neurosurgery Interns**

Department of Anesthesiology & Pain Medicine, University of Washington

<table>
<thead>
<tr>
<th>Topic</th>
<th>Attending Signature</th>
<th>Date</th>
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<tr>
<td>1. Preoperative Evaluation of the Neurosurgical Patient</td>
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<td>2. Cerebral physiology, cerebral edema, Intracranial pressure, and intraoperative brain relaxation</td>
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<tr>
<td>3. Neuropathology of anesthetic agents, Fluid and vasovagal medication management during craniotomy</td>
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<td></td>
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<td>4. Airway management in neurosurgical patients</td>
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<tr>
<td>5. Jugular venous oximetry</td>
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<td></td>
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<tr>
<td>6. Evoked potential monitoring in anesthesia</td>
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<td></td>
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<tr>
<td>7. Transcranial Doppler Ultrasoundography</td>
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<td></td>
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<tr>
<td>8. Anesthetic management of craniotomy including sitting craniotomy</td>
<td></td>
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<tr>
<td>9. Anesthesia for epilepsy surgery; awake craniotomy</td>
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<tr>
<td>10. Anesthesia for carotid endarterectomy</td>
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<td></td>
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<tr>
<td>11. Anesthesia for Interventional Neuroradiology</td>
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<td>12. Neuroprotection in the operating room</td>
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active participation in clinical and academic discussion with the attending neuroanesthesiologist and the neuroanesthesia fellow/resident. The interns are provided orientation material, a topic card (Figure 1.) enlisting essential topics for intraoperative discussion and also reading material. In addition, they are encouraged to discuss general topics of interest in neuroscience with the supervising anesthesiologist. They are expected to attend teaching activities of the anesthesiology department during the rotation including grand rounds, clinical conferences and journal clubs. They are allowed the flexibility to participate in any educational meetings relevant to either neuroanaesthesia or neurosurgery during this rotation to maximize the learning opportunities.

Educational Objectives
After successful completion of the rotation, the interns are expected to learn the basics:

- Preanesthesia assessment of the neurosurgical patient.
- Principles of perioperative anesthetic management of the neurosurgical patient.
- Pharmacology of commonly used anesthetic drugs.
- Principles and techniques of airway management with specific considerations for neurosurgical patients.
- Intraoperative monitoring during craniotomy.
- Principles and conduct of anesthesia for operative and endovascular neurosurgical procedures.

Patient Care
The interns are expected to demonstrate the following competencies:

- Perform basic pre-anesthetic evaluation of patients undergoing neurosurgical procedures.
- Set up the anesthesia workstation for neurosurgical anesthesia with help from resident/fellow.
- Perform bag-mask ventilation, laryngoscopy and intubation with appropriate considerations for neurosurgical patient under supervision.

Medical Knowledge
Basic knowledge of:

- Neuroparmacology of anesthetic agents.
- Jugular venous oximetry, evoked potential monitoring and transcranial doppler ultrasonography.
- Anesthetic considerations for craniotomy and interventional neuroradiology.

Practice-Based Learning and Improvement

- Participation and active involvement in discussions of clinical issues with attending neuroanesthesiologists and neuroanesthesiology fellow/resident.
- Search and read relevant published literature and discuss with faculty.

System Based Practice
- Assist in neuroanesthesia and multidisciplinary care involving preoperative and operating room team, neurosurgical intensive care team and post anesthesia care team.

Interpersonal and Communication Skills

- Conduct patient interview preoperatively and explain the plan, risks, benefits and alternatives.
- Discuss the case with the attending anesthesiologist and propose a working plan.
- Communicate effectively with the pre-operative nursing personnel, operating room staff, recovery room and intensive care unit staff regarding important issue in patient care.

Professionalism

- Attend the required academic meetings/activities.
- Complete all required tests and evaluations.
- Respect all personnel involved in the operating room as well as perioperative area.
- Show a high moral and ethical standard when caring for the patients, regardless of their socioeconomic, cultural or racial background and beliefs.

All the interns rated the quality of teaching on the rotation and the overall learning experience as outstanding or very good. The quantity of teaching was rated as very good by majority of the interns and 29% rated it good, indicating either need for more effort on part of the anesthesia educators or more desire to learn on part of the interns. About 72% found the overall clinical experience to be outstanding. Likewise, the overall effectiveness of the rotation was reported as outstanding or very good by all the interns. The following were reported as some of the best parts of the rotation:

- The opportunity to learn about neuroanesthesia and the workflow of the anesthesia team in the OR and perioperative period.
- Ability to partake in peri/intraoperative procedures coupled with excellent teaching.
- To emphasize how critical and beneficial it is to get to know the neuroanesthesia team and many of the residents on a personal level. The social advantage will make residency much more pleasant and productive over the years.
- To be able to learn the critical portions of anesthesia and have the opportunity to observe advanced neurosurgical cases at the same time advanced my knowledge greatly in two areas.

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Continued on page 6
Teaching by the attending.
This was the best clinical experience of my career thus far. I was able to learn neurosurgery and anesthesia without having to help with the daily minutia of running a service and carrying the pager. To be able to actually focus completely on the operative side of our work is an unbelievable advantage and blessing.
- Setting up and managing patient pre-operatively.
- Getting involved with procedures - intubation and art lines.
- Getting to know the attending, working on procedures, learning basics of neuroanesthetic choice/characteristics, etc.

There were no adverse comments despite the question least favorite part of the rotation. However, following were some specific areas for improvement:
- Teaching instruction was very valuable but course could benefit from more teachings.
- Would have liked to have more central line placement experience.
- Ask us to do a presentation.

While only nine neurosurgery interns have gone through this rotation in the last three years, the rotation has been very well received overall and noted as offering great educational value.

The program continues to improve based on the feedback. Neuroanesthesiology faculty also found the rotation very useful in general. We believe this is a good opportunity to get to know the neurosurgery trainees early on in their training and establish expectations for clinical care. It also provides an opportunity to expose the interns to the academic excellence and contributions of neuroanesthesiology in diverse aspects of clinical and basic neuroscience. At this stage, it is difficult to demonstrate the impact of this cross specialty training on patient level outcomes. Nevertheless, the rotation has helped the neurosurgery residents meet their training requirement and fostered good professional relationship between anesthesiology and neurosurgery trainees opening up the possibility of greater clinical and academic collaboration. We believe the rotation has helped engage the neurosurgery residents in the concept of team performance at an early stage of their training.

We acknowledge the contributions of the faculty of the Division of Neuroanesthesiology & Perioperative Neurosciences, UW in making this rotation successful: Drs. A.A. Artru, C.M. Crowder, K.B. Domino, J.G. Hecker, A.V. Lele, K. Luk, J.I. Metzner, P. Patel, I. Rozet, K.J. Souter, M.J. Souter, and M.S. Vavilala.
William L. Young Research Award Update and Application Submission Announcement

Chanannait Paisansathan, MD, Chair
Scientific Affairs Committee

William M. Armstead, PhD, Chair
Research Committee

Dr. William L. Young once wrote, “Finding the right set of questions is an anxiety-provoking decision process to face for a young trainee or a faculty, who rightly views the vast expanse of questions and methods as daunting. That expanse is daunting no matter what career stage you find yourself at. Standing at the ocean’s edge looking out to sea, the horizon does not change over the years, it is just one’s appreciation of what might lie beyond it.” His insightful statement about academicians resonates with many of us who seek answers to those questions. Throughout his career, Dr. Young demonstrated the passion of pursuing scholarly excellence. His multidisciplinary model led to the break down of specialty silos and barriers. His revolutionary work in cerebrovascular pathophysiology, especially arteriovenous malformations (AVM), explained perfusion pressure breakthrough and established new principles of medical treatment for this complex condition and numerous other forms of brain pathology relevant to neuroanesthesiology.

Dr. Young exemplified the most essential qualities of the investigative neuroanesthesiologist. He firmly believed in and embodied the link between strong mentorship and academic success. He also alerted us not to restrict ourselves to only anesthesia specific questions. All aspects of neuroscience are in the anesthesiologist’s purview. He addressed the necessity of resilience by saying, “The emotional humor that flow after being rejected cannot be allowed to cross the blood brain barrier, at least not into the limbic system.”

Dr. Young was an exemplary physician-scientist. Throughout his career, he served as the principal investigator on many National Institutes of Health grants, authored over 300 peer-reviewed publications, was the recipient of the ASA 2009 Excellence in Research Award, and was a member of the editorial boards for Anesthesiology, Stroke, JNA, etc. Dr. Young was the President of SNACC in 1996-97. His premature death brought shock to our society and the whole neuroanesthesia community. SNACC has organized the William L. Young Neuroscience Research Award to honor his legacy with the hope of promoting new discovery in neuroscience for anesthesiology and critical care.

The William L. Young Neuroscience Research Award will offer support to academic physicians and/or scientists who conduct either clinical or laboratory-based research relevant to neuroanesthesiology or neurocritical care. The inaugural William L. Young Neuroscience Research Award will be announced at the 2016 SNACC Annual Meeting in Chicago, Illinois. The successful applicant will receive $5,000.00 to support their research. The deadline for applications will be July 15, 2016. Details of the application process will be available on the SNACC website starting April 15, 2016 or by CLICKING HERE.

References:
3. Adrian Gelb: Serendipity, Mentorship and a Research Career: William L. Young, ASA Excellence in Research Award. SNACC News, Spring 2010. p. 4-7
Dr. Girija Prasad Rath
Organizing Secretary, AIIMS Neuroanaesthesia Update 2015
Additional Professor, Neuroanaesthesiology and Critical Care
All India Institute of Medical Sciences (AIIMS)
New Delhi, India

The Department of Neuroanaesthesiology and Critical Care at All India Institute of Medical Sciences (AIIMS), New Delhi, India organized the third annual AIIMS Neuroanaesthesia Update 2015 on September 26-27, 2015 under the stewardship of Professor Parmod K. Bithal. More than 175 delegates participated in this conference and Dr. Girija P. Rath was the Organizing Secretary.

The unique feature of this event was the live demonstration of neurosurgical cases and neuromonitoring techniques from the AIIMS operating room (OR), which was telecast live to the participating delegates in the auditorium enabling them to interact with the neuroanaesthesiologists and neurosurgeons in the OR. The coordinators for the workshop in the auditorium and OR were Dr. Hemant Bhagat (PGIMER, Chandigarh) and Dr. Ashish Bindra (AIIMS, New Delhi). The three cases presented were: 1) Middle cerebral artery (MCA) bifurcation aneurysm for craniotomy and clipping (neurosurgeon - Professor P. S. Chandra, neuroanaesthesiologists - Dr. Indu Kapoor), 2) Dorsal intramedullary tumor for laminectomy and excision under prone position (neurosurgeon - Professor Rajinder Kumar, neuroanaesthesiologists - Dr. Keshav Goyal, neurophysiologist - Professor Ashok Jaryal) and 3) Left posterior frontal glioma for awake craniotomy and excision (neurosurgeon: Dr. Vivek Tandon, neuroanaesthesiologists: Dr. Gyaninder Pal Singh and Dr. Charu Mahajan).

They shared their experience with anesthetic management in these cases, and answered the questions from the delegates in the auditorium (Figure 2).

There were live demonstrations of different monitoring modalities in the OR such as ICP, SjvO2, evoked potentials, BIS, ECoG, and hemodynamic parameters which were preceded by briefings on these topics, by Dr. Vasudha Singhal (Meditcity, Gurgaon), Dr. Prasanna Bidkar (JIPMER, Puducherry), Dr. Manish Marda (Fortis Hospital, Gurgaon), Dr. Surya K. Dube (AIIMS, New Delhi), Dr. Pallav Kumar (Paras Hospital, Gurgaon), and Dr. Navdeep Sokhal (AIIMS, New Delhi), respectively. There was excellent coordination between both the teams to facilitate audience interaction; Dr. Hemant Bhagat was ably supported by Dr. Nidhi Gupta (Apollo Hospital, New Delhi) and Dr. Bhavna Hooda (Base Hospital, New Delhi) for these activities (Figure 3). They induced all possible scientific queries and kept the audience engaged with their questions from the experts in OR. Complete surgical and anesthetic management, which included preoperative preparation, intraoperative concerns, and post-operative management, was discussed in all three patients.

The post-lunch session was started with the neuromonitoring workshop which included live demonstration of optic nerve sheath diameter (ONSD) by Dr. Renu Bala (PGIMS, Rohtak);
a keynote lecture on ONSD was delivered by Dr. Niraj Kumar (AIIMS, New Delhi). Dr. Deepak Sharma (Seattle, USA) demonstrated the uses of transcranial Doppler (TCD) in a volunteer. This was followed by a keynote lecture and live demonstration on cerebral oximetry (NIRS) by Dr. Virendra Jain (Fortis Hospital, Gurgaon). The workshop concluded with video demonstration of cerebral microdialysis by Dr. Nidhi Gupta (Apollo Hospital, New Delhi).

The workshop was followed by a formal inauguration by Professor Mahesh C. Misra (Director, AIIMS, New Delhi) (Figure 4).

A quiz on recent advances in neuroanesthesia and neurocritical care was arranged exclusively for resident anesthesiologists. Max Superspeciality Hospital, Saket, New Delhi won the first prize, whereas AIIMS, New Delhi got the second prize.

On day two, the first session on Advances of Neuroanesthesia and Neurointensive Care was chaired by Dr. K. J. Choudhury (Apollo Hospital, New Delhi) and Professor Sergio Bergese (Ohio, USA). Professor H. H. Dash (Director, Anesthesiology and Pain Management, Fortis Hospital, Gurgaon) enlightened the audience on Researches in Neuroanesthesia and Neurocritical Care: where India stands. Dr. Hemanshu Prabhakar (AIIMS, New Delhi) talked on Biomarkers of Cellular Injury and Death in Acute Brain Injury, Professor Sergio Bergese (Ohio State University, USA) spoke on Postoperative Delirium and Cognitive Dysfunction, and Professor Mihir P. Pandia (AIIMS, New Delhi) discussed about the Myths and Misunderstandings in Neuroanesthesia. This was followed by a brainstorming panel discussion on Intensive Care for Ischemic Stroke: Time to Redefine Stroke Program in India, moderated by Professor Rajiv Chawla (GB Pant Hospital, New Delhi). The panelists were Professor M. V. Padma (Neurologist, AIIMS, New Delhi), Professor Sailesh K. Gaikwad (Neuroradiologist, AIIMS, New Delhi), Professor Deepak Sharma (neuroanesthesiologist, Harborview Medical Center, Seattle, USA), and Dr. V. Pooniah (neurointensivist, Global Hospital, Chennai). The post-tea break session on Crisis Management in Neuroanesthesia was chaired by Professor Shobha Purohit (Jaipur) and Professor Nidhi Panda (PGIMER, Chandigarh). The first lecture on Intraoperative Rupture during Aneurysmal Surgery was delivered by Professor V. J. Ramesh (NIMHANS, Bangalore) which was followed by Intraoperative Brain Bulge by Dr. Kavita Sandhu (Max Hospital, New Delhi), and Respiratory Distress after Extubation in Patients Undergoing C-spine Surgery by Dr. Indranil Ghosh (INK, Kolkata). The Practical Session was chaired by Dr. Anil Parakh (Global Hospital, Mumbai) and Dr. Sergio Bergese (Ohio, USA). There were three lectures: Dr. M. Radhakrishnan (NIMHANS, Bangalore) spoke on Anticoagulants and Anti-platelets for Neurosurgery and Neuroradiologic Intervention, Dr. Deepak Sharma (Harborview Medical Center, University of Washington, Seattle, USA) discussed on How Can Anesthesiologists Contribute to Improving the Outcomes of TBI? (Figure 5) and finally, Dr. H. K. Venkatesh (Apollo Hospital, Bangalore) discussed Fluids During Elective Neurosurgery: What fluid, how much and how to titrate? This session was followed by lunch and a poster session was arranged, comprising of 10 short-listed, original studies. The judges were Professor Parmod K. Bithal (New Delhi), Professor Dilip K. Kulkarni (Hyderabad), and Professor Pragati Ganjoo (New Delhi).

The post-lunch session, interactive case discussion was moderated by a two-member panel of experts: Professor Monica Tandon (GB Pant Hospital, New Delhi) and Professor S. Manikandan (SCTIMST, Trivandrum). The two case scenarios about which the perioperative management was discussed were Acromegalic with Difficult Airway, Hypertension, and Diabetes Mellitus to Undergo Pituitary Surgery and a patient with pheochromocytoma undergoing Intracranial Aneurysmal Clipping on Emergency Basis.

Following tea-break, a special session on Brain Death and Organ Donation was organized, chaired by Professor M. K. Arora and Professor Aarti Vij (AIIMS, New Delhi). Dr. Surya K. Dube (AIIMS, New Delhi) gave an overview of Diagnosis of Brain Death, Dr. Prasanna Bidkar (JIPMER, Paducherry) stressed Care of Brain-Dead Organ Donors, and Dr. Sanjeev Lalwani (AIIMS, New Delhi) addressed the concerns regarding the legal issues during the organ donation process. The last session of
A Report on AIIMS Neuroanaesthesia
Continued from page 9

Dr. Kapil D. Soni (New Delhi) discussed the Management of ARDS in Neurologically Injured Patients. The event concluded with cheers and applause for the organizers from the delegates and a group photo session (Figure 6).

the day was chaired by Dr. Harsh Sapra (Medicity, Gurgaon) and Dr. Mukul Jain (IHBAS, Delhi). During this session, Dr. Rahul Yadav (RR Hospital, New Delhi) discussed the Contrast Use in Neurosurgery and Neuroradiology: Remembering complications, Dr. Saurabh Anand (Medicity, Gurgaon) spoke about Anesthesia in the Brain Suite: What we should not forget.

SAVE THE DATE!
Join Us in Chicago for These Thursday Symposiums and Workshops and Friday’s General Session:
• Basic Science Symposium - Neuroinflammation Following Traumatic Brain Injury
• Clinical Science Symposium - Update on Traumatic Brain Injury
• ENLS Workshop
• SNACC Hands - On Airway Workshop
• Career Development Workshop - How to Craft a Successful Grant Proposal
• The dinner symposium topics will focus on the Basic Science of Epilepsy, Innovative Surgical Methods for Seizure Control and Anesthetic Considerations in Epilepsy Surgery

Friday General Session:
• Maurice Albin Keynote Lecture - Novel Applications for Optical-Based Brain Monitoring Technologies
• Mini Symposium One - Anesthetic Neurotoxicity in Kids - Update on the Evidence
• Mini Symposium Two - Novel Developments in Neuropharmacology
• Plenary Session: Clinical Curveballs in Neuroanaesthesia
• And of course the two poster sessions!

See YOU in Chicago!
A Review of Guillain-Barre Syndrome and Its Anesthetic Implications

Srinivasa S. Thota, MD
Upstate Medical University
Syracuse, New York

What is Guillain-Barre Syndrome?
GBS is an acute form of autoimmune inflammatory neuropathy caused by a bacterial or viral infection. Various infections, including the Zika virus, can trigger an immune response that produces antibodies that damage the myelin sheath. This leads to axonal degeneration.

With the decline in cases of poliomyelitis over the world, this syndrome has become the most common cause of acute generalized paralysis. The annual incidence is one-four cases per 100,000 population. Most importantly, Guillain-Barre Syndrome has profound anesthetic implications.

What are the clinical manifestations of Guillain-Barre polyradiculoneuritis?
Many patients have acute or subacute onset of skeletal muscle weakness or paralysis of the legs with a history of a respiratory or gastrointestinal infection four weeks prior to the onset of neurologic symptoms. The skeletal muscle weakness progresses cephalad to include the trunk and arm. Paresthesia may precede the onset of paralysis. It is characterized by sudden onset of ascending motor paralysis, areflexia, and variable paraesthesia.

Bulbar involvement can cause bilateral facial paralysis. Intercostal muscle paralysis leading to impaired ventilation, and pharyngeal weakness causing dysphagia are the dangerous effects of the syndrome. Mechanical ventilation is required when the vital capacity decreases to 15 ml/Kg.

Autonomic nervous system dysfunction is an important finding in these patients. This manifests as wide fluctuations in systemic blood pressure, resting tachycardia, peripheral vasoconstriction, and cardiac conduction abnormalities. Severe orthostatic hypotension may lead to syncope when elevating a patients head on a pillow.

Progress occurs over 10-12 days, followed by gradual recovery. Eighty-five percent achieve a good recovery and 3 to 5% develop chronic recurrent neuropathy. Plasmapheresis and intravenous immunoglobulins are used to modulate the disordered immune response.

How does one manage anesthesia in a patient with Guillain-Barre Syndrome?

Elective cases are to be postponed till the patients are asymptomatic.

Autonomic dysfunction leads to profound hypotension with blood loss, changes in posture or positive airway pressure. Conversely, noxious stimulation like direct laryngoscopy and intubation can precipitate severe hypertension, tachycardia, and cardiac dysrhythmias. It is wise to monitor the systemic blood pressure with an intra-arterial catheter. Due to up-regulation of postsynaptic receptors, patients may exhibit exaggerated response to indirect acting vasopressors.

Succinylcholine is avoided in view of the denervated skeletal muscles and the risk of hyperkalemia. Short acting nondepolarizing muscle relaxants like cisatracurium or rocuronium are used. The sensitivity to the nondepolarizing muscle relaxants may vary from extreme sensitivity to resistance, depending on the phase of the disease.

As damaged nerves are more susceptible to a second injury, neuraxial blocks in a patient with GBS should be carefully considered. Continued support of ventilation is often necessary postoperatively.

References:
Feldman JM: Cardiac arrest after succinylcholine in a pregnant patient recovered from GBS. Anesthesiology 1990; 72:942

Visit www.snacc.org for the latest SNACC information
**SNACC EVD/LD Project Update**

Abhijit Vijay Lele, MBBS, MD, MS  
University of Washington  
Project Leader

The SNACC Task Force for developing the guidelines for Perioperative Management of the External Ventricular Drain (EVD) and Lumbar Drain (LD) has been finalized. This task force was charged to develop evidence based guidelines and accompanying educational material to help in the perioperative management of CSF draining devices, a commonly performed bedside neurosurgical procedure. We are thankful to the following SNACC members who volunteered to serve on the task force:

**Introduction, Indications, Contraindications**  
Amie Hofnagel, MD - University of Florida, Jacksonville  
Nina Schloemerkemper, MD, PhD, FRCA - University of California Davis Medical Center

**Pre-operative Assessment**  
David Adam Wyler, MD - University of Pennsylvania  
Abhijit Vijay Lele, MBBS, MD, MS - University of Washington

**Transporting Patients**  
Nophanan Chaikittsilpa, MD - University of Washington  
Monica Shanta Vavilala, MD - University of Washington

**Intraoperative Management**  
James Williams, MD, PhD - University of North Carolina at Chapel Hill  
Bhiken Ishwarlal Naik, MD - University of Virginia Health System

**Special Circumstances**  
Lakshikumar Venkat Raghavan, MBBS, MD, FRCA, FRCPC Toronto Western Hospital, University Health Network  
Ines Koerner, MD, PhD - Oregon Health and Sciences University

**Developing Competency, Continued Medical Education, and Creation of Checklist**  
Abhijit Vijay Lele, MBBS, MD, MS - University of Washington  
Individual sections are to be completed by mid March, 2016 and compilation of manuscript and submission to SNACC board of directors is projected to take place in May, 2016.

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**Update from the Research Committee**

William A. Armstead, PhD, Chair

A relatively new initiative of the SNACC Research Committee has been the development of a web based tool designed to foster collaboration amongst SNACC members. The intent is to have SNACC members enter information pertaining to their research interests and techniques. Through use of key words, members will be able to search for experts in a desired area. It is hoped that the members will use this web based searchable directory to identify people who might answer specific research based questions and/or begin new collaborations. SNACC members are encouraged to use this tool located on the SNACC homepage under recent SNACC news and by CLICKING HERE. (Login is required).

**Education Committee Makes Great Contributions to SNACC Members**

Reza Gorji, MD, Editor

Once again, under the leadership of Deepak Sharma, MD, and all the active and hard working members of SNACC’s education committee, there is a host of educational material presented on the SNACC website. A recent SNACC Periscope is by Irene Osborn, MD where the scalp block is looked at to alleviate post craniotomy pain. John Bebawy, MD discusses the variability of brain death policies in the United States in the March article of the month section. Sharpen your skills with the neuroanesthesia quiz by Shobhana Rajan, MD and update your references with SNACC bibliography section directed by Rachel Kutteruf, MD. New also is a PBLD resource on anesthetic management for intracranial tumor resection: making rationale pharmacological choices and is hosted by Shaun E. Gruenbaum MD, PhD and Federico Bilotta, MD. Many kudos to the education committee for their hard work. I am sure all members will benefit from these educational contributions.
The Education Committee: Keeping SNACC Members Informed

Deepak Sharma MD, DM, Chair

Your SNACC education committee continues to work hard to bring educational material to you through the website and the SNACC app on your smartphone or tablet. I am grateful to the enthusiastic members of this committee who work year round to make sure you continue to receive new material. Google analytics tells us that the use of the educational material being produced by our committee is consistently increasing. Hundreds of unique users from around the world access the education material from our website. We are glad we are fulfilling a core aspect of the SNACC mission to help advance the care of neurologically ill patients by providing educational resources.

Our newest initiative, the PBLD bank, a collection of problem-based learning discussions (PBLD) is focused on neuroanesthesia topics. Each PBLD will offer one aspect of clinical neuroanesthesia in detail. We hope the educators among SNACC members will find this useful in their daily teaching activities. This initiative is being spearheaded by Drs. Shaun E. Gruenbaum and Federico Bilotta. The first PBLD is titled Anesthetic Management for Intracranial Tumor Resection: Making Rationale Pharmacological Choices. If you would like to contribute a PBLD, please feel free to contact me at dsharma@uw.edu. New contributions are always welcome. Another new initiative is the audio segment called rendezvous with the expert where we will interview leading experts about important clinical scenarios. In the first edition, you can listen to Dr. Jeffery Pasternak speak to Dr. Shobana Rajan regarding anesthesia for sitting craniotomy. Dr. Pasternak offers opinions about anesthetic challenges and options in dealing with them. Coming soon, you will hear Dr. Audree Bendo being interviewed by Dr. Mazen Maktabi on Anesthesia for Traumatic Brain Injury. Please let us know what you think about the rendezvous with the expert as we value your feedback and suggestions for future topics.

Have you had a chance to listen to the latest editions of the Periscope? Dr. Irene Osborn, a very well-known neuroanesthesiologist was interviewed by Dr. Jack Buckley regarding scalp block for post craniotomy pain. She describes her vast experience with scalp blocks with important insights. Earlier, Dr. Babak Jahromi, a renowned neurosurgeon and neurointerventionalist was interviewed by Dr. Amie Hoefnagel on interventional neurosurgical treatment of acute ischemic stroke, an area increasingly being discussed in clinical as well as research arenas. Your suggestions about the topics and the experts you would like to listen to are important to us. Please encourage your residents/fellows to use all the educational content that is accessible through the SNACC mobile app.

We continue to hear your appreciation of the article of the month segment being run by Drs. John Bebawy and Oana Maties. We are grateful to the various experts who have contributed the critical commentaries on recently published clinical, translational as well as basic research articles of relevance to neurosciences. If you would like to write a commentary, please feel free to contact me at dsharma@uw.edu. We are glad that you find the monthly interactive neuroanesthesia quiz fun and interesting. Drs. Shobana Rajan and Shaheen Shaikh work hard to make sure that a new quiz is published for you every month. Drs. Arne Buddle, Verghese Cherian, Suneeta Gollapudy and Craig McClain are our experts behind the interactive clinical case discussions. Drs. Laura Hemmer, Antoun Koht and David Schreibman work on the neuromonitoring subcommittee to provide us educational material for neurophysiological monitoring. Please encourage your resident/trainees to access the quiz and the case discussions from the SNACC website.

Finally, Dr. Rachel Kutteruf has started work on the fourth annual update of the SNACC bibliography. This should be ready by the SNACC Annual Meeting in October. If you are interested in contributing to the SNACC bibliography, just let us know.

As always, any suggestions, ideas or feedback you may have for the committee are welcome. I can be reached at dsharma@uw.edu.
Laurel E. Moore, MD  
Chair, Communications Committee

Kate Rosenblatt, MD  
Member, Communications Committee

As one of the oldest anesthesia subspecialty organizations in the world, the Society for Neuroscience in Anesthesiology and Critical Care (SNACC) provides an extensive wealth of resources, opportunities, professional support and education. The field of neuroscience is constantly evolving. In fact, in the past decade, five new fields of neuroscience have been defined. The interdisciplinary study of economics, neuroscience and psychology that seeks to explain human decision making, known as neuroeconomics, recently opened the door for neurofinance, neuroinvesting, neurotrading and neuromarketing. History tells us, however, that scientific progress in understanding the human brain may never match the exponential growth of technology described by Moore's law. Medical discovery, especially in complex areas like neuroscience, does not accelerate in this fashion. Scientific advances are often irregular with unpredictable flashes of insight punctuating the slow grind-it-out lab work of creating and testing theories. Every so often new scientific paradigms sweep through the field and cause scientists to reevaluate portions of what previously had been presumed settled. Understanding the human brain is getting harder as we learn more and the closer we look at the brain, the greater the degree of complexity we find.

The interests and concerns of SNACC members are at the forefront of brain and spinal-cord health and safety and SNACC members have a vast reach in today’s medical arena. SNACC members collaborate to ensure each breakthrough in neuroscience translates into better clinical practice. Our members share expertise in basic and clinical neuroscience, neuroanesthesia, neurointensive care, neuroprotection, neurotoxicity and mechanisms monitoring anesthesia-induced unconsciousness. SNACC is the professional and academic home for many of our members because the field of neuroscience requires a life-long student. To become a SNACC member is to join a multidisciplinary, intra-level family bound by a mutual respect for and fascination with neuroscience, who all agree that the complexity of this scientific field is simply awesome.

Top 10 Reasons to Become a SNACC Member:

1. Online PBLD bank and interactive neuroanesthesia quizzes and clinical cases.
2. SNACC newsletter with various articles translated in Spanish.
3. Opportunities to contribute to the SNACC newsletter and create and publish educational material.
4. Serve on a variety of SNACC committees and special interest groups (SIGs).
5. Reduced rates for the SNACC Annual Meeting, workshops and symposiums.
6. Access to job openings, international contacts and networking.
7. Access to job openings, international contacts and networking.
8. Discuss clinical conundrums with fellow neuroanesthesiology experts.
9. Participate in online journal clubs.
10. Stay connected to SNACC year-round.

Top 10 Reasons to Follow SNACC on Facebook and Twitter:

1. SNACC Bibliography containing suggested articles and important reviews.
2. SNACC consensus statements.
3. Neurosurgical anesthesia fellowship directory and curricular guidelines.
5. Opportunities to contribute to the SNACC newsletter and create and publish educational material.
6. Serve on a variety of SNACC committees and special interest groups (SIGs).
7. Reduced rates for the SNACC Annual Meeting, workshops and symposiums.
8. Access to job openings, international contacts and networking.
9. Discuss clinical conundrums with fellow neuroanesthesiology experts.
10. Participate in online journal clubs.
8. Stay connected to SNACC year-round.
7. Immediately access the SNACC educational tools.
What is Twitter?
Developed in 2006, Twitter is an internet-based communication tool that provides real-time messaging in tweets of 140 characters or less. While even developer Jack Dorsey has called a tweet “a short burst of inconsequential information,” Twitter can also be a powerful platform for sharing information in real time. SNACC proposes to use Twitter as a clinical and research forum for discussion between members. As such we are planning a specific topic each month in order to promote discussion between SNACC members and to attract followers to our feed. It’s important to note that 40% of individuals who register for Twitter never actually tweet but use the forum for information and entertainment. Thus you’re free to follow the conversations but need not feel pressured to participate individually. Upcoming topics include Dr. Jeffrey Pasternak sharing his thoughts on seated craniotomy and Dr. Deepak Sharma discussing his newly published article on intraoperative secondary insults during orthopedic surgery in TBI (JNA 2016). Suggestions for future topics are welcome. https://twitter.com/SNACC2016

How do I start?
Here is the link to a wikihow page on starting Twitter:  http://www.wikihow.com/Make-a-Twitter-Account. It is easy and free.

What is Facebook?
Our Facebook page can be found at Society for Neuroscience in Anesthesiology and Critical Care (SNACC). You can follow our Twitter feed as well as additional conversations on Facebook. https://www.facebook.com/SNACC.org

What is LinkedIn?
LinkedIn is an internet-based professional networking service. While we have almost 300 members, it is not a primary source of information for SNACC members. However, if you wish to promote a job opening, new fellowship or other position, feel free to contact me (laurelmo@med.umich.edu) and I will be happy to post it for you on our page at: SNACC. https://www.linkedin.com/groups/4397668/profile.

You can always find SNACC’s direct links to our Twitter feed, Facebook and LinkedIn pages on our homepage at http://www.snacc.org/. Join Twitter by May 1, 2016 in order to participate in our first clinical forum with Dr. Jeffrey Pasternak.
Contribute to the
William L. Young, MD Research Award

Following Dr. Young’s untimely death in 2013, a fund was established to honor his life and career accomplishments. The William L. Young, MD Research Award will be presented on a regular cycle and offer support to academic physicians and/or scientists who conduct either clinical or laboratory-based research in neuroanesthesiology or neurologic critical care. We currently have a SNACC organizational commitment of $50,000 and a SNACC board member commitment of approximately $30,000. We are on our way, but need your help!

To donate to this very worthy cause, visit www.snacc.org
Presented below and going forward, the newsletter will be offering educational material related to neuroscience, neuroanesthesia and critical care. We hope this proves educational to SNACC members. If you want to contribute materials to this section please email rgorji@gmail.com. Please make the subject line read: Neuromonitoring Case.

**Zika Virus: An Emerging Arbovirus**

Presenters:
Reza Gorji, MD and Fenghua Li, MD

Questions:
1. What are the clinical manifestations of the Zika virus?
2. How does the Zika virus spread?
3. What are the neurological manifestations and findings in a Zika virus infection?

Answers are on page 19.
The Accreditation Council for Graduate Medical Education (ACGME) has adopted the outcomes-based milestones as a framework for determining resident performance within the six ACGME core competencies. As the anesthesiology residency programs implemented the milestones, a need to develop subspecialty-specific measures of resident performance based on the milestones was recognized. To fill this need for neuroanesthesiology, SNACC appointed a task force to develop a tool for evaluating ACGME milestones for neuroanesthesiology and to provide recommendations in implementing them. This tool is expected to help in standardizing the evaluation process across different programs and we anticipate publishing this as well.

The task force members are experienced neuroanesthesiology educators. They are: Drs. L. Jane Easdown, Michael Mahla, Arpad Zoloyomi, Guy Edelman, Peggy Wheeler and Eugenia Ayrian. The task force is being supported by an advisory committee comprising Drs. Jack Buckley, Catherine Christenson, Robert Peterfreund, Sergey Pisklakov, Barbara Rogers, David Schreiber, Naveen Vanga, and Matthew Whalin.

The task force is making good progress. After reviewing numerous existing evaluation tools in use in various departments and multiple rounds of editing and discussions, an initial draft of the neuroanesthesiology milestones evaluation reporting worksheet (the tool for reporting evaluations) has been completed. The existing ACGME milestones have been modified to represent the knowledge, skills and behaviors that may be observed during neuroanesthesiology rotation. These milestones aim to identify skills/knowledge/competencies that a general anesthesiologist occasionally practicing neuroanesthesia should have after successful completion of training. We are currently piloting this assessment tool in 20 anesthesiology departments across the United States for a three month period to refine it with user feedback. The programs helping in the pilot process will report how this compares to their existing evaluation reporting tool and will make suggestions for improvement. After making improvements based on the feedback from the piloting programs, the evaluation tool will be ready for inputs from the SNACC members. The task force anticipates completing their work by October 2016.
SNACC NEWS

EDUCATION CORNER ANSWERS

Answers:

Zika virus is a RNA virus of genus Flavivirus. It is transmitted to primates (including humans) through an infected Aedes species mosquito. Humans and other primates can be reservoirs of the virus and can be vectors of transmission.1

Clinical manifestations of Zika infection include rash, fever, arthralgias, myalgias and headache. Fortunately, clinical deterioration and illness are rare and mild. Mortality is exceedingly rare. A case of Guillain-Barre syndrome has been reported in the literature in a patient who was infected with the Zika virus.2 This case was reported in 2014. The case occurred in French Polynesia with a population of 268,000. The authors do not present data, but report a 20x increase incidence of Guillain-Barre syndrome in their country. Furthermore, there might be an association between microcephaly in newborns and Zika virus infection.3 In one expectant patient, ultrasound revealed microcephaly and calcifications of fetal brain and placenta. Subsequent autopsy on the fetus showed complete agyria, hydrocephalus and wide spread calcification of the cerebral cortex. The Zika virus was found in the fetal brain. Presently, the Centers for Disease Control recommends evaluation in fetuses and infants of women infected with the virus.

The history is important in disease diagnosis. Clinical presentation, travel history and personal activities should be obtained in detail. Laboratory diagnosis is available. Once discovered, it should be reported to the state and local health departments. The patient should be isolated to prevent disease transmission to other vectors. The differential diagnosis of Zika infection includes dengue fever, leptospirosis, malaria, rubella, measles and parvovirus.

Treatment is non-specific and supportive. Hydration and antipyretics should be employed with the exception of aspirin and other NSAIDs due to the possibility of dengue infection which would lead to high risk of hemorrhage. Therefore, dengue virus infection should be ruled out before the mentioned drugs can be used. Critically important is isolation of patients diagnosed with Zika virus and dengue fever to avoid risk of further local transmission by infecting mosquitoes.

References:
1. Center for Disease Control  cdc.gov/zika

Save Money for Your Practice with Group Membership Billing

The Society will now send one comprehensive renewal notice to include all SNACC members in your practice or institution as one “group”. Every member of your group will also receive 10% off of their membership dues.

We currently have four institutions participating in the group billing, representing 24 members! Those institutions are Anesthesia Consultants of Indianapolis, LLC; Montefiore Medical Center, Department of Anesthesiology; University of Washington, Department of Anesthesiology and Vanderbilt Anesthesiology.

Contact Greg Leasure, Membership Manager greg@societyhq.com TODAY to sign up!