

Anesthesia and Perioperative Medicine
Western University

Vascular/Thoracic Fellowship
Program Director – Dr. George Nicolaou



Please visit the Vascular/Thoracic Anesthesia Fellowship site for most up-to-date information:
http://www.schulich.uwo.ca/anesthesia/education/fellowship/fellowships_offered/thoracic_anesthesia.html

Clinical Fellowship – Vascular/Thoracic Anesthesia

This is an exciting one-year fellowship in thoracic and/or vascular anesthesia for trainees to gain expertise in the diagnosis and management of patients undergoing complex thoracic and vascular surgery. Located at Victoria Hospital, it is an extremely busy program covering all types of complex elective and emergency cases, with the exception of lung transplantation.

Vascular surgery operates six times a week and thoracic surgery five times a week. We have monthly multi-disciplinary and morbidity and mortality rounds with our surgical colleagues to assure quality control and to keep up on current events.

The majority of vascular and thoracic patients coming through our institution have multiple co-existing diseases including severe cardiorespiratory compromise. These patients have an extensive preoperative evaluation by anesthesia and/or internal medicine, cardiology and respirology. We have developed a multi-disciplinary perioperative high-risk clinic for optimization and follow up of these patients. The Thoracic and Vascular Surgical Programs have their own postoperative step-down monitored units with invasive monitoring capabilities.

OVERVIEW

Our Fellowship Program is well established with ongoing clinical research opportunities, in collaboration with our surgical colleagues. The program is one year in duration. Each week, the fellow will work two days independently in the operating room, one day in vascular and one day in thoracic with a consultant. The fifth day is for academic and research projects.

The fellows are encouraged to attend x-ray rounds, thoracic/vascular rounds, fiberoptic bronchoscopy clinics and transesophageal rounds. Reading material is provided and fellows are encouraged to go to another centre for two weeks to broaden their experience.

After successful completion of all the requirements, a certificate will be issued from Western University attesting to the training undertaken. The Fellowship Program is extremely flexible, and is designed to accommodate the individual fellow's needs.

FELLOWSHIP STRUCTURE

- **Duration:** The fellowship training program will be undertaken over twelve consecutive months and includes four weeks of vacation time.
- **Number of fellowship positions:** 2
- **Location:** Fellowship training will take place at Victoria Hospital.
- **Service commitment:** 100 days per year (subject to change according to department fellowship policies). This service commitment may be in subspecialties unrelated to thoracic/vascular anesthesia. The remainder of the weekdays is subspecialty time. Academic time may be granted depending on the academic productivity of the fellow.

ELIGIBILITY REQUIREMENTS FOR CANADIAN and FOREIGN MEDICAL GRADUATES

- ✓ Candidates must possess a medical degree from a recognized University
- ✓ International Medical Graduates must be approved by the PGE Office at Western University
- ✓ English Language Requirement: TOEFL-iBT required to achieve an overall score of no less than 100 with a minimum score of 24 in speaking or listening (**IMG only**).
- ✓ **Link to Application Requirements:**
http://www.schulich.uwo.ca/anesthesia/education/fellowship/application_requirements.html



Schulich School of Medicine & Dentistry



CLINICAL EXPOSURE

The fellow will administer anesthesia care in the thoracic and/ vascular ORs initially under the supervision of an attending anesthesiologist, with increasing autonomy as appropriate. The fellow may also act in a supervisory role of residents with an overseeing attending anesthesiologist.

THORACIC SURGERY

The robotic (da Vinci robot) and video-assisted thoracic surgical (VATS) programs are well developed at our institution and currently account for 80% of cases, the remainder being open thoracotomies or investigative procedures. On average per year, we perform 300 major pulmonary resections and 80 esophagectomies. We have the largest experience with esophagectomies and VATS procedures in Canada. To enhance our clinical experience and improve our teaching program, we have developed an advanced VATS surgery and anesthesia workshop using a pig model. Here, consultants can enhance their skills in fiberoptic bronchoscopy and management of one lung ventilation.

The pediatric thoracic anesthesia program is evolving with the recruitment of a pediatric thoracic surgeon. Pediatric thoracic procedures include investigative, video-assisted and open procedures.

Alongside this is the adult and pediatric regional anesthesia and acute pain program, allowing for excellent perioperative pain management. The majority of our adult and pediatric patients receive thoracic epidurals or paravertebral blocks for postoperative pain management.

VASCULAR SURGERY

The Vascular Division of Surgery at Victoria Hospital continues to be a pioneer in endovascular stenting of abdominal and thoracic aneurysms and claims one of the largest series in North America. In April 2013, the construction of the hybrid vascular operating room was completed. This hybrid suite is equipped with numerous large, high-definition, flat-screen monitors for viewing images as well as the patient's vital signs. It combines the newest computer generated technology and the newest radiologic imaging in a sterile operating room environment. This gives the surgeons the ability to perform traditional, open surgery and minimally invasive, endovascular procedures on the same patient, at the same time, in the same place. Patient benefits include the following:

- Shorter procedure times

- Less radiation used during imaging
- Reduced need for ICU care
- Shorter hospital stays
- Faster recovery

Ruptured abdominal and thoracic aneurysms that have favourable anatomy are repaired by the endovascular route at our institution. The thoraco-abdominal aneurysm program is well developed and these aneurysms are now generally repaired using endovascular branched stents. The thoraco-abdominal aneurysms that cannot be repaired by using endovascular stents are repaired utilizing partial left heart bypass.

Recently, we have started repairing aortic arch aneurysms via the endovascular route. We use rapid ventricular pacing to optimize surgical conditions before stent deployment. On average per year, we perform 150 open abdominal aneurysm repairs, 35 endovascular thoracic, 150 endovascular abdominal and 12 endovascular thoraco-abdominal aneurysm repairs.

Preliminary results of one of our studies have shown that spinal oximetry detects decreases in spinal cord blood flow early, allowing for the early initiation of preventive spinal cord protection treatment strategies. We presented our results on spinal cord protection strategies at the 2012 International Forum of Cardiovascular Anesthesia in China.

TRANSESOPHAGEAL ECHOCARDIOGRAPHY (TEE)

Our Transesophageal Program is well developed with formal teaching and multi-disciplinary weekly rounds. We have also acquired a new TEE machine with 3D capabilities. TEE is specifically available for management of thoracic aneurysm stenting and for adjunctive management of the vascular patient with associated cardiac disease. While not every anesthetist involved in vascular anesthesia is experienced in TEE, there is usually one anesthetist experienced in TEE available for guidance.

POINT-OF-CARE ULTRASONOGRAPHY

Recently, we have acquired a new ultrasound machine for point-of-care ultrasonography for use in the perioperative period. We have an established basic and advanced teaching program for point-of-care ultrasonography for consultants, fellows and residents.

SIMULATION

The integration of simulation scenarios on thoracic and vascular anesthesia for fellows and residents has been very successful and rewarding. This environment allows for better preparation in this clinically diverse patient population. We continue to develop in this frontier of enhanced learning.

ACADEMIC PROGRAM

Dedicated time will be provided for research. The fellow will be responsible for providing the following teaching activities:

- One Anesthesia Grand Rounds;
- One Thoracic or Vascular Anesthesia Journal club every four months;
- One anesthesia resident seminar;
- Clinical teaching of residents and students in the OR.

RESEARCH PROJECTS IN PROGRESS

- * The influence of CPAP and PEEP (with a recruitment maneuver) on PaO₂ during one lung ventilation, employing a lung protective ventilation strategy;
- * Treatment modalities for spinal cord protection;
- * Comparing Transcutaneous to Transdural Near-Infrared Spectroscopy for Detection of Regional Spinal Cord Ischemia in a porcine model;
- * Biochemical markers of spinal cord ischemia in patients undergoing thoracic aortic endovascular repair.
- * Malignant Pleural Effusion Thoroscopic Outpatient Pleurodesis. A feasibility trial.

EXTRACURRICULAR ACTIVITIES

The fellow will not be prevented from participating in other clinical activities including call, as available and desired. This is subject to the proviso that she/he is in good standing with the program and such extracurricular activities do not interfere in any way with either the clinical or academic activities of the fellowship. The scope of these activities will be determined by the nature of the fellow's license and attendant privileges.

EVALUATION

The faculty will be responsible for evaluation of the thoracic/vascular fellow. The Fellowship Director for Thoracic/Vascular Anesthesia will be responsible for providing evaluations which will occur at 3 month intervals. If a fellow is not performing at an expected level monthly evaluations will be undertaken and mid-rotation feedback will be provided to the fellow.

SUMMARY

Overall, the Thoracic and Vascular Program at Victoria Hospital is a very busy program with an incredible variety of interesting and complex cases. It is constantly evolving to keep up with medical and technological advances and to ensure that patients receive the most optimal perioperative care currently available. The program offers excellent opportunities for fellows to become proficient in adult and pediatric thoracic/vascular anesthesia, transesophageal echocardiography and point-of-care ultrasonography both in a clinical and research setting. It is designed to meet the individual's needs, along with the best exposure to the available clinical caseload.