Rotation Specific Goals and Objectives - Vascular Surgery For residents from Divisions of Cardiac, General, Orthopaedic Surgery

DEFINITION

Vascular surgery is concerned with the diagnosis and management of congenital and acquired diseases of the arterial, venous, and lymphatic circulatory systems, exclusive of the vessels intrinsic to the heart and brain.

GENERAL OBJECTIVES

Residents must learn the methodology for the safe management of the patient with vascular problems and the knowledge necessary to: assess the patient's condition efficiently and accurately; prioritize the patient's needs; determine whether patient's needs exceed the facilities resources; ensure that optimal care is provided at all times.

On completion of the educational program, the resident will demonstrate an understanding of the knowledge, skills, and attitudes essential for the appropriate and competent care of patients with vascular disease.

Residents must demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to Vascular Surgery. In addition, all residents must similarly demonstrate an ability to incorporate gender, cultural and ethnic perspectives in research methodology, data presentation and analysis.

SPECIFIC OBJECTIVES

At the completion of rotation, the resident will have acquired the following competencies and will function effectively as:

Medical Expert/Clinical Decision-Maker

Vascular surgeons possess a defined body of knowledge and procedural skills that are used to collect and interpret data, make appropriate clinical decisions, and carry out diagnostic and therapeutic procedures within the boundaries of their discipline and expertise. Their care is characterized by

up-to-date, ethical, and cost-effective clinical practice and effective communication in partnership with patients, other health care providers, and the community. The role of medical expert/clinical decision-maker is central to the function of vascular surgeons and draws on the competencies included in the other major roles of scholar, communicator, health advocate, manager, collaborator, and professional.

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, and education.

Specific Requirements

- Demonstrate cognitive understanding of patient care problems with vascular disease as well as the diagnostic and therapeutic skills to effectively and ethically manage these problems.
- Elicit a history that is relevant, concise, accurate and appropriate to the patient's problem(s).
- Perform physical examination that is relevant, sufficiently thorough, and appropriate and meets specialty specific standards and, if necessary, exceeds these standards.
- Select medically appropriate investigative tools in a cost-effective, ethical and useful manner.

Demonstrate an understanding of and the capacity to solve problems in relation to the following:

1. Surgical Anatomy and Operative Exposures.

The student will demonstrate an understanding of the anatomy of the extremities, neck, thorax, abdomen and be able to discuss standard operative exposures.

2. Hemodynamics and Investigations.

The student will demonstrate an understanding of essential hemodynamic principles and how they apply clinically in the non-invasive- vascular laboratory.

3. Radiobiology and Physics(Interventional radiology).

The student will understand very basic radiologic principles and physics and relate them to the daily clinical investigations of CT, MRI, U/S, and angiography.

4. Angiography, angioplasty, stenting

The student will outline the basic principles of angiography, angioplasty and stenting and their clinical indications.

5. Radiologically Treated Venous Disease and IVC filters.

The student will outline the radiologic investigations used in the diagnosis and treatment of venous disease and outline an approach to the use of IVC filters.

6. Antithrombotics and Vascular drugs.

The student will demonstrate an understanding of thrombolytic therapy and outline management strategies for both arterial and venous thrombolysis.

The student will also distinguish between antiplatelet, rheologic, anticoagulant therapy, and their clinical application.

7. Vascular Medicine

The student will formulate an approach to pre-operative assessment and risk factor modification for vascular patients with generalized atherosclerosis and devise startegies for medical optimization of these patients

8. Coagulation Disorders(Hematology)

The student will distinguish between common coagulation disorders and their management.

9. Atherosclerosis and non Atherosclerotic lesions

The student will demonstrate an understanding of the basic pathophysiology of atherosclerosis as well as other common arteriopathies and their medical management.

10. Vascular Conduits.

The student will distinguish between various vascular grafts(vein, artery, prosthetic) and the clinical indications for each.

11. Complications of Vascular Surgery

The student will outline common medical complications of vascular surgery and demonstrate an approach to their management.

The student will also develop an approach to the management of major surgical complications of graft thrombosis, infection, anastamotic aneurysm, and aortoenteric fistula.

12. Acute Limb Ischemia and its Sequelae

The student will define and classify acute limb ischemia and demonstrate an approach to the surgical and non-surgical management of acute limb ischemia caused by thrombosis, embolism, atheroembolism, drugs, and trauma.

The student will be able to recognize and manage compartment syndrome.

13. Chronic Lower Extremity Ischemia

The student will describe the natural history and epidemiology of chronic lower extremity ischemia and outline it's medical treatment.

14. Aortoiliac Occlusive Disease

The student will demonstrate an approach to the patient with aortoiliac occlusive disease and formulate a management plan based on individual patient factors.

15. Infrainguinal Occlusive Disease

The student will demonstrate an approach to the patient with infrainguinal occlusive disease and formulate a management plan based on individual patient factors.

16. Conditions Affecting the Upper Extremity

The student will demonstrate an approach to the diagnosis and management of patients with upper extremity occlusive disease including both surgical and non-surgical options.

17. Vascular Trauma

The student will demonstrate an understanding of epidemiology and mechanisms of vascular trauma to the extremities, thorax, abdomen, and neck and outline an approach to the surgical management of patients with these injuries.

18. Extracranial Cerebrovascular Disease

The student will describe the epidemiology and natural history of medically and surgically treated cerebrovascular disease with reference to major relevant clinical trials in the literature.

The student will demonstrate an approach to the evaluation and medical management of these patients.

19. Surgical management of Extracranial Cerebrovascular Disease

The student will outline the operative principles and technical considerations for the surgical treatment of carotid and vertebrobasilar occlusive disease.

20. Renovascular Disease

The student will demonstrate an understanding of the pathophysiology of renovascular disease and outline an approach to the evaluation and diagnosis of patients with this disorder.

The student will also develop an approach to the medical, endovascular and surgical treatment of this disorder.

21. Mesenteric Ischemia

The student will demonstrate an approach to the classification, diagnosis and management of both acute and chronic mesenteric ischemia. This should include surgical and nonsurgical management of arterial and venous disorders.

22. Abdominal Aortic Aneurysms

The student will describe the epidemiology and risk factors associated with AAA and outline investigative and management principles for patients with AAA.

Based on the literature the student will outline the indications for surgery as well as the surgical options for elective and emergency aneurysm repair.

23. Endovascular Aneurysm Repair

The student will outline the indications for endovascular aneurysm repair in the thoracic and abdominal aorta.

The student will also understand the concept of endoleak and be able to outline a classification for this.

24. Aneurysms- peripheral and visceral

The student will demonstrate an approach to the evaluation and management of patients with peripheral and visceral artery aneurysms including indications for and techniques of operative management.

25. Thoracoabdominal Aneurysms

The student will demonstrate an approach to the classification of and evaluation and management of patients with thoracoabdominal aortic aneurysms

The student will describe the extensive risks associated with this surgery including spinal cord ischemia, renal failure, stroke, hemorrhage and death.

26. Aortic Dissection

The student will demonstrate an approach to the classification, evaluation and management of patients with acute and chronic aortic dissection.

The student will be able to discuss the medical and surgical therapy for management of both ascending and descending aortic dissections in the acute and chronic phase.

27. Lymphatics

The student will demonstrate an understanding of lymphedema, have an approach to its classification and outline principles of therapy of lymphedema.

28. Venous Disorders

The student will develop an approach to the diagnosis and management of patients with acute deep venous thrombosis.

The student will also differentiate between acute and chronic venous insufficiency and develop an approach to the investigation and surgical and non-surgical management of chronic venous disorders, including varicose veins and the post-phlebitic syndrome.

29. Arterio-Venous Malformations

The student will describe the hemodynamics and pathophysiology of arteriovenous fistulae including congenital malformations.

The student will also demonstrate an approach to evaluation and treatment of these disorders.

30. Upper Extremity Neurovascular Conditions

The student will describe the pathophysiology, classification and management of upper extremity compressive syndromes including the neurogenic, arterial, venous components of the thoracic outlet syndrome.

The student will also describe the pathophysiology and evaluation and management of upper extremity complex regional pain syndrome including surgical and non-surgical management options.

The student will demonstrate an understanding of the causes of Raynaud's disease/phenomenon, it's classification and formulate a management plan based on individual patient factors and etiology.

31. Angioaccess

The student will describe the basic pathophysiologic principles of dialysis access and outline a basic management strategy for patients requiring long term dialysis access.

32. Amputations

The student will demonstrate an understanding of the indications for extremity amputation, appropriate levels and technical considerations of various procedures.

33. Apply knowledge and expertise to performance of technical skills relevant to vascular surgery, including:

A) At the end of the rotation, the resident will have knowledge of:

- endovascular procedures and fluoroscopic techniques
- Exposure of the thoracic and abdominal aorta, iliac and carotid arteries.
- Exposure of the femoral and infrainguinal vessels

B) At the end of the rotation, with supervision the resident will be able to perform:

- Laparotomy and abdominal closure
- Wound closure
- Femoral arterial exposure, dissection and control
- Lower extremity amputation
- o Uncomplicated arterial anastamosis with assistance
- Saphenofemoral vein dissection and vein stripping.

Communicator

To provide humane, high-quality care, vascular surgeons must establish effective relationships with patients, other physicians, and other health professionals. Communication skills are essential for the functioning of a vascular surgeon, and are necessary for obtaining information from, and conveying information to patients and their families. Furthermore, these abilities are critical in eliciting patients' beliefs, concerns, and expectations about their illnesses, and for assessing key factors impacting on patients' health.

General Requirements

- Establish therapeutic relationships with patients/families.
- Obtain and synthesize relevant history from patients/families/communities.
- Listen effectively.
- Discuss appropriate information with patients/families and the health care team.

Specific Requirements

- Establish therapeutic relationships with patients that are characterized by understanding, trust, respect, empathy and confidentiality.
- Elicit and synthesize relevant information from the patient, their family, and/or community about his/her problem, while considering the influence of factors such as the patient's age, gender, ethnic, cultural and socioeconomic background, and spiritual values on that illness.
- Discuss appropriate information with the patient and his/her family, and effectively communicate this information with other health care providers that facilitates optimal health care of the patient.

Collaborator

Vascular surgeons work in partnership with others who are appropriately involved in the care of individuals or specific groups of patients. It is therefore essential for vascular surgeons to be able to collaborate effectively with patients and a multidisciplinary team of expert health professionals for provision of optimal patient care, education, and research.

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Manager

Vascular surgeons function as managers when they make everyday practice decisions involving resources, co-workers, tasks, policies, and their personal lives. They do this in the settings of individual patient care, practice organizations, and in the broader context of the health care system. Thus, specialists require the abilities to prioritize and effectively execute tasks through teamwork with colleagues, and make systematic decisions when allocating finite health care resources. As managers, specialists take on positions of leadership within the context of professional organizations and the dynamic Canadian health care system.

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements

- Allocate finite health care and health education resources effectively.
- Work effectively and efficiently in a health care organization, ranging from national to an individual clinical practice to organizations at the local and regional level
- Understand population-based approaches to health care services and the Canadian health care system and their implication for medical practice.
- Participate in planning, budgeting, evaluation and outcome of a patient care program.
- Effectively utilize information technology such as literature searches and vascular databases to optimize patient care, continued selflearning, and other activities
- Utilize time and resources effectively in order to balance patient care, earning needs, outside activities, and personal life.

Health Advocate

Vascular surgeons recognize the importance of advocacy activities in responding to the challenges represented by those social, environmental, and biological factors that determine the health of patients and society. They recognize advocacy as an essential and fundamental component of health promotion that occurs at the level of the individual patient, the practice population, and the broader community. Health advocacy is appropriately expressed both by the individual and collective responses of vascular surgeons in influencing public health and policy.

General Requirements

- o Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

- Identify the risk factors and other determinants of health that affect a patient with vascular diseases, so as to be able to effectively contribute to improving individual and societal health in Canada.
- Recognize and respond to those issues, settings, circumstances, or situations in which advocacy on behalf of patients, professions, or society is appropriate.
- Be knowledgeable about the local resources that are available for patient management, support and rehabilitation to improve their physical, and emotional well being.

Scholar

Vascular surgeons engage in a lifelong pursuit of mastery of their domain of professional expertise. They recognize the need to be continually learning and model this for others. Through their scholarly activities, they contribute to the appraisal, collection, and understanding of health care knowledge, and facilitate the education of their students, patients, and others.

General Requirements

- Develop, implement and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff/students and other health professionals.

• Contribute to development of new knowledge.

Specific Requirements

- Develop, implement, and document a personal continuing education strategy.
- Apply the principles of critical appraisal to sources of medical information by incorporating a spirit of scientific enquiry and use of evidence into clinical decision making.
- Demonstrate the ability to select an appropriate question, efficiently search for and assess the quality of evidence in literature and to keep up to date with the evidence-based standard of care for the conditions most commonly seen in his/her vascular practice.

Professional

Vascular surgeons have an important societal role as professionals with a distinct body of knowledge, skills, and attitudes dedicated to improving the health and well-being of others. Vascular surgeons are committed to the highest standards of excellence in clinical care and ethical conduct, and to continually perfecting mastery of their discipline.

General Requirements

- o Deliver highest quality care with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behaviours.
- Practise medicine ethically consistent with obligations of a physician.

Specific Requirements

- Deliver the highest quality care with integrity, honesty and compassion including: display attitudes commonly accepted as essential to professionalism; use appropriate strategies to maintain and advance professional competence; continually evaluate one's abilities, knowledge and skills and know one's limitations of professional competence; exercise appropriate judgement of knowing when to refer the patient.
- Exhibit appropriate personal and interpersonal professional behaviours.
- Practice medicine in an ethically responsible manner that respects the medical, legal and professional obligations of belonging to a self-regulating body.