Cardiovascular Technology Profession Statement

Prepared by

The Malaysian Society of Cardiovascular Technologist (MSCVT)

Content:-

Background

The role of the cardiovascular technologist (CVT) is increasingly complex and demanding. Not only must the cardiovascular technologist be familiar with approved clinical protocols for each type of cardiovascular examination he or she performs, the technologist also must be able to analyze the patient's clinical history fully, in order to identify the purpose of the examination, frame the clinical question(s) that the examination is intended to answer, and expand the examination as necessary to answer the clinical question(s).
Cardiovascular technologist also plays an integral role in the treatment process, applying independent judgment, problem solving skills, analytical thinking and the ability to obtain and integrate accurate diagnostic information whilst supporting the clinicians in performing the treatment.

Description of Profession

Cardiovascular technology is an allied health profession specifically focuses in diagnosis and treatment of patients with cardiac and vascular diseases. Through the use the specific high-technology equipment and at the direction of a qualified physician, performs cardiovascular examination and therapeutic procedures to create an easily definable data from which correct anatomic and physiologic diagnosis may be developed for each individual patient. The cardiovascular technologist therefore is highly specialized diagnostician of the various presentations of cardiovascular diseases.

The profession of cardiovascular technology encompasses four sub specialty areas including:-

1) Non-Invasive cardiovascular
2) Invasive cardiovascular
3) Non-invasive vascular
4) Cardiac pacing and electrophysiology

Scope of Duty

Cardiovascular technologists are dealing with patients with heart diseases and high risk of cardiopulmonary arrest patients therefore all of them must be competent in performing the emergency necessitation procedure. Cardiovascular technologists are also required to be competent to perform intravenous access and administering medication as instructed by clinicians during the procedure.
The scope of duty of cardiovascular technologist should include but not limited to these subspecialty areas.

1) **Noninvasive cardiovascular**.

The technologists independently perform the following noninvasive cardiovascular investigation procedures and analyze the data in order to create easily definable information for the clinicians to be used in patients' management. The procedures are including but not limited to:-

- 1.1 Electrocardiography (ECG)
- 1.2 Stress Testing
- 1.3 Ambulatory ECG monitoring
  - 1.3.1 Holter
  - 1.3.2 King of Heart
  - 1.3.3 Rhythm Card
- 1.4 Ambulatory Blood Pressure monitoring
- 1.5 Cardiopulmonary Exercise Testing (VO2 Max).
- 1.6 Nuclear Medicine
- 1.7 Echocardiogram
- 1.8 Exercise Stress Echocardiogram

1.9

1.10 Pharmacological Stress Echocardiogram

1.11 Transesophageal Echocardiogram (TEE) (assisting physician or performing the procedure under supervision of physician)

1.12 Venepuncture and intravenous drug administration

1.13 Emergency resuscitation procedure whenever needed.

2) **Invasive cardiovascular**.

In invasive cardiovascular laboratory, cardiovascular technologists have collaboration with other allied professionals such as Cardiac Angiographers and Cath Lab Nurses in supporting cardiologists to perform the diagnostic and interventional cardiac catheterization procedures. The role of CVT in invasive labs including but not limited to:-

2.1 Monitor patient's haemodynamic & vital signs

2.2 Analyzing the blood sample for the blood gas analysis (ABG) and Intracardiac shunt study

2.3 Performing Transesophageal echocardiogram under supervision of cardiologists

2.4 Performing Transthoracic Echocardiogram

2.5 Preparing and assisting Intavascular Ultrasound (IVUS) procedure

2.6 Preparing and assisting IntraAortic Balloon Pump (IABP) insertion

2.7 Preparing and assisting the Rotational Atherectomy procedure

2.8 Performing vascular access removal & Groin management

2.9 Assisting diagnostic Cardiac Catheterisation Procedures

2.10 Assisting various Transcatheter Cardiacvascular Interventions such as (but not limited to):-

- 2.10.1 Coronary Angioplasty
- 2.10.2 Occluder devices implantation
- 2.10.3 Valvuloplasty of heart valves
- 2.10.4 Prosthetic valve implantation (TAVI)
- 2.10.5 Vascular angioplasty
- 2.10.6 Removal of foreign materials

2.11 Venepuncture and intravenous drug administration

2.12 Performing Tilt Table Test

2.13 Emergency resuscitation procedure when necessary

3) **N**

oninvasive Peripheral Vascular.

Cardiovascular technologists specialized in this area are independently performed various vascular procedures including but not limited to:-

3.1 Ankle- Brachial Index (ABI) study

3.2 Carotid Ultrasound Duplex study

3.3 Peripheral Artery Ultrasound Duplex study

3.4 Peripheral Vein Ultrasound Duplex study

3.5 Thermography and Plethysmography Procedures

3.6 Compression procedure of peripheral vascular access pseudo aneurysm and hematoma

3.7 Emergency resuscitation procedure when necessary

4) **Cardiac Pacing & Electrophysiology**

The duties of the cardiovascular technologists in this subspecialty area are divided into two main duties which are in the invasive electrophysiology laboratory and non-invasive electrophysiology lab.

In invasive electrophysiology laboratory, cardiovascular technologists have collaboration with other allied professionals such as Cardiac Angiographers and Cath Lab Nurse in supporting electrophysiologists to perform various invasive electrophysiological diagnostic and therapeutic procedures and rhythm management device implantation. The role of CVT in invasive electrophysiology laboratory including but not limited to:-

4.1 Cardiac Pacing

4.1.1 Support Permanent Pacemaker Implantation

4.1.2 Support Implantable Cardiac Defibrillator (ICD) Implantation

4.1.5 Support Biventricular Pacemaker Implantation

4.1.6 Support Temporary Pacemaker Implantation and programming

4.2 Electrophysiology

4.2.1 Support Invasive Electrophysiology Study

4.2.2 Support Radiofrequency Ablation Support

4.3 Emergency resuscitation procedure when necessary

In non-invasive electrophysiology laboratory, cardiovascular technologists who are specialized in this area are independently performed various procedures including but not limited to:-

4.4 Ambulatory electrocardiography monitoring

4.4.1 Holter monitoring

4.4.2 Rhythm Card

4.4.3 King of Heart

4.5 Conducting the follow-up clinic for interrogation, programming and reprogramming of the implantable devices such as:-

4.5.1 Pacemaker

4.5.2 Implantable defibrillator

4.5.3 Biventricular pacemaker

4.6 Emergency resuscitation procedure when necessary

References

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4) Society for Cardiological Science and Technology (2011) "Cardiac Clinical Physiologist" *http://www.scst.org.uk/pages/page_box_contents.asp?pageid=747&navcatid=136 Accessed date: 10th May 2011.*