An Introduction to Cardiothoracic Surgery

Dr. Bridie O'Neill; Mr Haris Bilal

June 2011
Volume 1
Issue 1
Doctors Academy Publications

Cardiothoracic surgery is an exciting and challenging surgical speciality which provides treatment of diseases affecting the heart and lungs and, in some centres, the oesophagus.

DOCTORS ACADEMY

BETTER EDUCATION. BETTER HEALTH.

DOCTORS ACADEMY
Disseminating Medical Knowledge and Skills Globally

WJMER

World Journal of Medical Education and Research

An Official Publication of the Education and Research Division of Doctors Academy

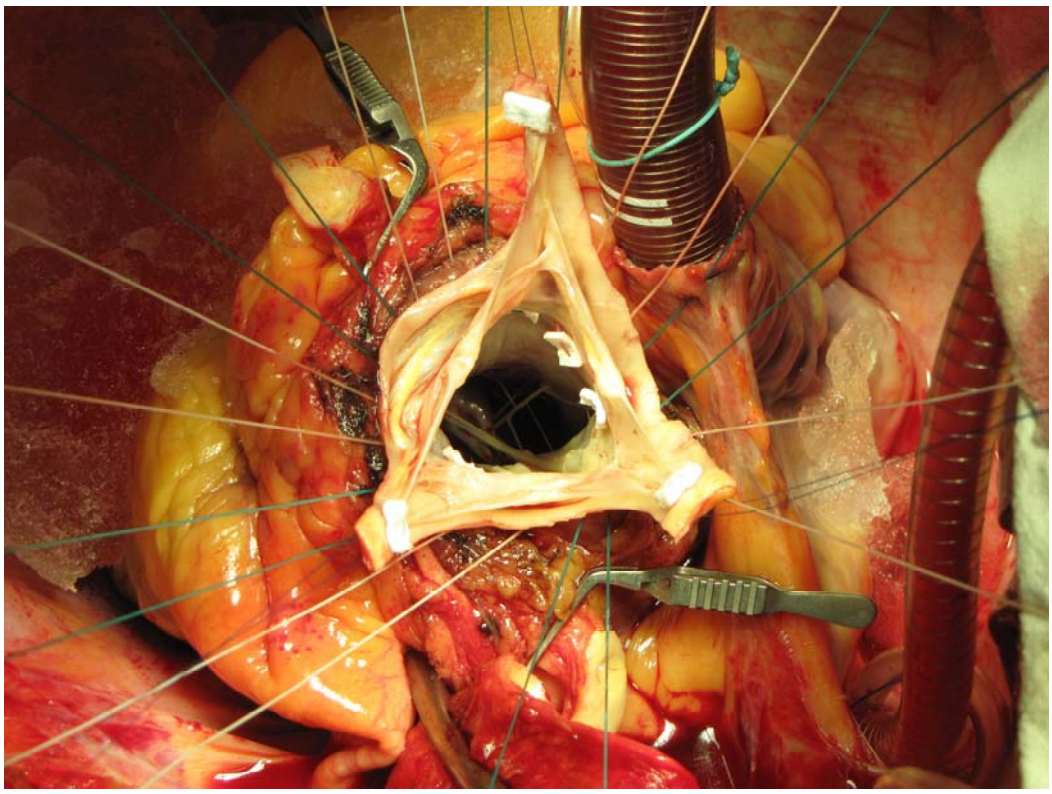
In this edition, these topics and more....

Table of Contents

WJMER
World Journal of Medical Education and Research:
An Official Publication of the Education and Research Division of Doctors Academy
Career Options
DAUIN 20120011

An Introduction to Cardiothoracic Surgery

[1]Dr. Bridie O'Neill, MB ChB, MRes, [2]Mr Haris Bilal, MBBS, MRCS
[1]Department of Anaesthesia, James Cook University Teaching Hospital, Middlesbrough
[2]Department of Cardiothoracic Surgery, University Hospital of South Manchester
Address for Correspondence: b.oneill@doctors.org.uk



Introducing Cardiothoracic Surgery…

Cardiothoracic surgery is an exciting and challenging surgical speciality which provides treatment of diseases affecting the heart and lungs and, in some centres, the oesophagus.

The first successful cardiac operation was in 1953 and since then cardiac surgery has rapidly expanded to include numerous operations. The most common operations include coronary artery bypass grafting (CABG), valve replacement or repair, pneumonectomy and lobectomy.

In this specialty, life and death tread on a thin wire. There is nothing minor about complications, so there is a great deal of focus on improving the safety of the surgery. Cardiothoracic surgery is not just a specialty but a lifestyle that requires commitment, physical dexterity and mental strength, and requires sacrifices throughout in order to perform the long and frequently complex operations.

Life as a Cardiothoracic Surgeon

A day in cardiac surgery begins from the previous day. In simple terms, it does not end! Surgeons start the night before by reviewing their patients and are expected to go through their patients as thoroughly as possible, despite having seen them in clinic. On a typical operating day itself, surgeons would start with reviewing in-patients on the ward. The ward rounds are short, precise and focussed.

Due to the length of the operations, patients will typically be sent for early in the morning and will often be in the anaesthetic room by 8am. During this time it is important for surgeons to be available in the unlikely event that they quickly decompensate in the anaesthetic room and emergency cardiopulmonary bypass needs to be implemented.

Operating time varies from operation to operation and team to team, but an average CABG may take four to six hours. Cardiac surgery is a team based effort with surgeon as the lead and with ultimate responsibility for the outcome. However, it is a busy theatre and on a standard day there will be at least seven people in attendance including theatre nurses, anaesthetists and perfusionists who operate the cardiopulmonary bypass machine. Typically, two operations will be performed in the day.

Following their surgery, patients must be assessed in the intensive care unit which is run in conjunction with anaesthetists. Pre-operative patients for the following day must then be reviewed on the wards. The days are often long and finishing times may be highly variable but the work can be highly rewarding for those involved. This is because cardiac operations have been shown to increase survival for a given set of clinical conditions.

In general, operations are elective but there is still some emergency work and in-patients may need to be re-opened should there be a complication. Due to the specialist expertise required should a cardiac surgery patient deteriorate, a senior registrar is always resident on site and will be responsible for all patients in intensive care, the ward and emergency setting. The on-calls are about 1:7 as a registrar and consultant.

Although cardiothoracic surgeons will frequently perform just a few operations on a regular basis, the different surgeries performed over a career will be wide and varied. There are also options for sub specialisation including aortic surgery, transplantation (including of artificial hearts), congenital cardiac surgery and oesophageal surgery.

In addition to operating days and on-call, a cardiac surgeon will also be involved with seeing post-operative patients and potential pre-operative patients in outpatient clinics. The surgeon's attendance is also required in multi-disciplinary discussions with interventional and non-interventional cardiologists.

Thoracic surgery life style is more sedate and family friendly compared to cardiac surgery. Out of hours calls as a registrar and consultant are minimal and the on-calls as a registrar in pure thoracic centres are non-resident. Most of the thoracic on-call work is related to trauma. Oesophageal surgery, which constituted a major bulk of thoracic surgery, has partly moved to upper gastrointestinal teams but is still done in some thoracic units.

In addition to on-calls thoracic surgeons must see patients in pre-operative clinics and liaise with a multi-disciplinary team including physicians, radiologists and oncologists.

Thoracic private practice has increased over the years whilst cardiac has steadily declined but does still remain. There is also scope to work abroad with the North American association of thoracic surgeons who are predicting a significant shortage of cardiothoracic surgeons by 2015-2016. UK-trained cardiac surgeons are often in high demand internationally.

Training

Cardiothoracic surgery is a highly competitive speciality. Potential cardiothoracic surgeons must compete for core surgical training posts prior to advancing to specialist training. In 2010, there were 22 ST3 posts in the UK, with 6 applications per post.

Training in thoracic surgery is coupled with cardiac surgery, and requires a minimum of two years of cardiac surgery and 4 years of thoracic surgery. The choice in choosing a pure thoracic theme comes early in the career and the training is themed accordingly. The examination for fellowship for thoracic surgery is the same as cardiac but is set to become uncoupled in the years to come.

The Future

In the UK and North America, cardiothoracic training has always been coupled together. However, with time, recent advancements in lung malignancy and increasing volumes of work, thoracic surgery has established itself as an entity, so that more and more units are recruiting specialist thoracic surgeons.

Cardiac surgery has rapidly evolved over the past 50 years. Two exciting developments in cardiac surgery include minimally invasive cardiac surgery and the transplantation of artificial hearts. Minimally invasive surgery has been performed routinely in other surgical specialities for some time e.g. laparoscopic and arthroscopic work. It is now starting to be utilised in cardiac surgery as well. Most notably it has been utilised for mitral valve replacements and CABGs.

Fewer hearts are available for organ transplantation at a time when heart failure is increasingly prevalent. Artificial hearts cannot, as yet, fully replace the function of the heart in the long term but have been used as a bridge prior to transplantation. The use of these mechanical hearts and the ability to maintain life is an exciting new development in cardiothoracic surgery.

DOCTORS ACADEMY

Disseminating Medical Knowledge and Skills Globally

The World Journal of Medical Education and Research (WJMER) is the online publication of the Doctors Academy Group of Educational Establishments. It aims to promote academia andresearch amongst all members of the multi-disciplinary-healthcare team including doctors, dentists, scientists, andstudents of these specialties from all parts of the world. The journal intends to promote thehealthy transfer of knowledge, opinions and expertisebetween those who have the benefit of cutting edgetechnology and those who need to innovate within their resource constraints. It is our hope that this will help todevelop medical knowledge and to provide optimal clinical care in different settings all over the world.

ISBN 978-938057322-9

WJMER

World Journal of Medical Education and Research

An Official Publication of the Education and Research Division of Doctors Academy