EDITORIAL VIEW

Developing sub-specialties in anesthesia – why we need cardiac anesthetists?

Rashad Siddiqi, FCPS (Anesth), FCPS (Cardiothoracic Anesthesia)

Consultant Cardiac Anesthetist / Associate Professor of Anesthesia
Department of Cardiac Anesthesia, AFIC-NIHD, Rawalpindi

Correspondence: Dr. Rashad Siddiqi, Consultant Cardiac Anesthetist / Associate Professor of Anesthesia Department of Cardiac Anesthesia, Armed Forces Institute of Cardiology-National Institute of Heart Diseases, Rawalpindi (Pakistan); Cell: +92 321 851 0300; E-mail: r4rashad@gmail.com

ABSTRACT

The specialty of anesthesia has progressed at a rapid pace since its first successful demonstration in 1846. Recognition and training in sub-specialties of anesthesia is not new and has been trending for last four decades in the developed countries. Cardiac anesthesia was conceived as a sub-specialty with a series of successful Blalock Taussig shunts and publication of first paper in 'Cardiac Anesthesia' in 1946. About 86% of the global burden of the cardiovascular disease is in the developing countries; coronary artery disease and rheumatic heart disease especially on a rise in Pakistan. With an increasing number of specialized cardiac centers across the country and specialists in cardiac surgery, there is a need of specialized cardiac anesthetists to meet the increasing demands.

Key words: Anesthesia; Cardiac care facilities; Cardiac surgical procedures; Education, training; Pakistan

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Since the historic day of October 16, 1846, the specialty of anesthesia has made progress at a very rapid pace, achieving the milestones of development of new anesthetic gases; introduction of masks, endotracheal tubes and laryngoscopes; and advent of intravenous agents.[1] An increasingly successful and safe anesthesia for complex surgical operations, lead the surgery to evolve itself into highly specialized sub-domains. It was complimented by anesthesia and compelled the development of new sub-specialties in anesthesia as well, to meet the ever increasing demands of the new trends in surgery in the developed countries. Thus, the rapid progress in anesthesia and surgery compulsorily complimented each other; leading to the development of both specialties simultaneously. The Accreditation Council for Graduate Medical Education (ACGME) in America, runs almost 60 accredited programs that include sub-specialties of anesthesia; including adult cardiothoracic, obstetric and pediatric anesthesia, critical care medicine; pain medicine as well as clinical informatics and hospice & palliative medicines.[2] In the United Kingdom, faculties of pain and intensive care medicine have been established at the Royal College of Anesthetists that run fellowship programs in these two disciplines.

The inception of cardiac anesthesia goes back to 1938, when Dr. Robert E. Gross performed the first successful ligation of a patent ductus arteriosus (PDA) at Boston Children's Hospital.[3] Early pioneers in cardiac surgery readily acknowledged the important role played by the anesthesiologists. Blalock mentioned by name the anesthesiologists involved in each case in his first paper on shunt operations named after him and his colleague as Blalock Taussig Shunt.[4] It is difficult to identify a precise time when cardiac anesthesia became a sub-specialty. Did it begin with Harmel and Lamont's care of Dr. Blalock's blue babies in 1944; or on publication of the first ever paper on cardiac anesthesia in 1946;[5] or with publishing of the first textbook on cardiac anesthesia by Keown in 1956?

The Cleveland Clinic took lead in developing the department of cardiac anesthesia in the United States of America; starting the first cardiothoracic anesthesiology fellowship in 1976. There has been

a remarkable growth in this field since then, in terms of prominence and scientific contributions by the cardiac anesthesiologists, who now are chairpersons of anesthesia departments and deans in various academic centers. They are playing active roles in the Society of Thoracic Surgeons, leading workshops on neurologic consequences of cardiac surgery; and are members in the committees to develop guidelines for perioperative cardiovascular evaluation for non-cardiac surgery at American College of Cardiology (ACC) and American Heart Association (AHA).

According to the World Health Organization, 86% of the global burden of cardiovascular disease is in the developing countries.[6] Prevalence of coronary artery disease is rising in the urban population of Pakistan from reported 0.7% in 1965 to 8.2% in 2008.[7,8] While incidence of rheumatic heart disease (RHD) is declining worldwide with less than 0.1% in the developed countries, the prevalence of RHD is still reported to be >1% in Pakistan.[9]

Cardiac surgery started in Pakistan in the 70's while the College of Physicians and Surgeons Pakistan (CPSP) started fellowship in cardiac surgery in 1990. At present, there are 18 public and private sector institutes accredited by CPSP for training in cardiac surgery, while many institutes continue to run Master of Surgery (MS) programs. On the other hand, only seven institutes have been accredited by CPSP for training in cardiothoracic anesthesia, Army Cardiac Centre Lahore being the latest entrant.[10] The demand of properly trained cardiac anesthetists will increase as there are now 9 dedicated functional cardiac institutes in the country, and a number of other public and private sector hospitals also offer cardiac surgery. The expertise of cardiac anesthetist is also being sought outside the operating rooms, during pediatric catheterization lab interventions; high-risk angioplasties and electrophysiology procedures; and of course in cardiac surgical intensive care units (CCU). With advent of the new sub-specialized domains of cardiac surgery like minimally invasive surgeries, percutaneous valve replacements, pediatric cardiac surgery and initiation of cardiac transplant program in Pakistan, the need of a continuous injection of specialized clinicians cannot be stressed too much. The advantage of sub-specialty training is adequate exposure and training in invasive monitoring and trans-esophageal echocardiography (TEE); management of pacemaker and internal cardioversion devices (ICD); monitoring and management during surgical treatment of arrhythmias; and management of intra-aortic balloon pumps (IABP) and ventricular assist devices (VAD).

There has been a lot of debate in the recent meetings of the Pakistan Society of Anesthesiologists (PSA) whether or not to continue and develop the fellowship program in cardiothoracic anesthesia. The seemingly never-ending shortage of clinicians in anesthesia in Pakistan may discourage many; the fact remains that a proper competency-based structured learning program with regular in-training assessments at an accredited institution is far superior to the apprenticeship offered at some centers. We need to move forward and not to look back. Let us take lead in the region by developing pediatric cardiac surgery centers, congenital cardiac surgery centers and cardiac transplant centers.

To sum up, to cope up with the advancements and specialization in the domains of surgery, we must recognize the need of developing newer sub-specialties in anesthesia. Pakistan Association of Cardiothoracic Anesthesiologists (PACTA) can play an important role in regularizing clinical practices in cardiac surgery as well as in developing guidelines for safe conduct of cardiac anesthesia.

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