The Congenital Cardiac Anesthesia Society – An Update on the First Twelve Years

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Title Page

The Congenital Cardiac Anesthesia Society – An Update on the First Twelve Years

Abbreviated Title: Congenital Cardiac Anesthesia Society Update

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Introduction

As a result of advances in surgical techniques and successes in pediatric cardiac care, children with congenital heart disease (CHD), even those with the most complex structural anomalies, are surviving longer than ever before. Fifty years ago, fewer than 10% of children with complex CHD survived to adulthood. Now over 90% of children are expected to survive and thrive as a result of effective diagnosis and treatment (1). Indeed, today, adults with CHD out-number children with CHD by a margin that continues to increase (2). Nevertheless, many patients with CHD are not truly cured but palliated, and may develop late sequelae of CHD most commonly congestive heart failure, pulmonary hypertension, arrhythmias and endocarditis (3). These patients will require life-long expert care and, as cardiac anesthesiologists, we need to be prepared to face the challenges inherent to this growing and aging population of adults with CHD.

Congenital Cardiac Anesthesia Society and Its Mission

The Congenital Cardiac Anesthesia Society (CCAS) was founded on October 19, 2005, as a section within the Society for Pediatric Anesthesia (SPA). The turn of this century marked a time of rapid advancement of highly specialized knowledge within the field of congenital cardiac anesthesia and a substantial increase in the numbers of patients, including adults, with CHD presenting for cardiac and non-cardiac surgery. The idea for a new society first originated with several key leaders in congenital cardiac anesthesia who wanted to promote the subspecialty and provide coherent education and training in this emerging field and to address a perceived lack of adequate representation within existent cardiac surgical and pediatric/pediatric anesthesia groups.
The mission of the CCAS was developed: “to improve the perioperative care and outcomes, and facilitate technological advances in therapy for newborns, infants, children and adults with congenital heart disease requiring anesthesia”. Furthermore, it was designated that this mission would be accomplished by (1) education, (2) collaboration of members, (3) coordination with other societies having like-minded goals and objectives, (4) research, (5) establishing a multi-institutional database, (6) training guidelines, and (7) advocacy.

The CCAS has grown significantly over the years. In 2005, our initial membership consisted of 113 active members. Today, there are over 1300 members in the CCAS with 703 active members, 426 residents and/or fellows and 133 international members (Figure 1). Membership within the CCAS allows for several benefits including discounted conference fees at CCAS-sponsored educational events, including those held in conjunction with the SPA, the Society of Cardiovascular Anesthesiologists (SCA), and the Pediatric Cardiac Intensive Care Society (PCICS), and access to various educational materials through the website (www.ccasociety.org). The newsletter regularly hosts reviews and commentaries on important research articles pertinent to the specialty. In addition, CCAS provides a national and international forum for networking with other anesthesiologists interested in the care of patients with CHD, from infancy through adulthood. The membership is also encouraged to participate in the CCAS activities and governance and to contribute to the mission of the society. Several venues are available, including volunteering to serve in the various committees, and eventually becoming a committee member, contributing to the Newsletter, Question of the Week and the Lecture depository, submitting research proposals to the Database committee and of course participating in the election of officers.

The complexity of congenital cardiac care and the therapeutic options available to children and adults with CHD has substantially increased over the past few years. Since its inception, the CCAS has been at the forefront of progress within the subspecialty of congenital cardiac anesthesia. CCAS aims to bring clinicians together and, when appropriate, establish standards and protocols that ensure the highest
quality of anesthetic care. In 2008, a working group of the CCAS created and recommended an organized curriculum for advanced second year fellowship training, a curriculum that most pediatric cardiac anesthesia educators use today (4). These curriculums and the training guidelines were done in line with the proposed training guidelines in the matching disciplines of pediatric cardiology and congenital heart surgery (5). In addition, CCAS has been involved in developing consensus statements and practice guidelines for important clinical care issues including the use of recombinant activated factor VII (6), the use of near infrared spectroscopy (7) and sedation practice recommendations for pediatric patients in the cardiac catheterization laboratory (8). The Society will continue to pursue similar collaborative efforts as a major part of our mission.

Educational Initiatives and On-Line Resources

Education is one of the primary objectives of the CCAS. Our educational initiatives are distributed through our website, semi-annual newsletter and annual meeting.

In its infancy the CCAS website was simple and limited to the mission of the society, bylaws, charter institutions and membership gateway. However, as the Society matured, so did the website. Today it is the primary source of information regarding the many activities related to the CCAS and the center of communication for our members. The website contains pertinent information regarding our annual meeting, the Society of Thoracic Surgery (STS)-CCAS database, the semi-annual newsletter, advanced fellowship training, including available training sites, and an extensive archive of enduring educational materials in anatomy, physiology, echocardiography and the anesthetic and surgical management of patients with CHD. More recently, we have incorporated into the website several interactive, fun educational initiatives including a “Question of the Week” and “Poll of the Month”. These new features provide a forum to discuss important, potentially controversial, clinical issues and have received positive feedback from our membership.
In the summer of 2007 the inaugural CCAS Newsletter was published. In this first issue, the president-elect described the accomplishments of a society that was only two years old: a 2-day conference with the PCICS, a workshop with the Society of Cardiovascular Anesthesiologist (SCA), and the first successful Annual Meeting of the CCAS at the SPA Winter Meeting. From its beginning our Society has focused on collaboration within the congenital cardiac community, and the newsletter is an integral part of our educational mission. Our more recent newsletters continue to highlight accomplishments of the Society in addition to providing literature reviews on important publications and expert commentaries on a variety of topics.

The CCAS Annual Meeting is held in concert with the SPA-AAP Annual Spring Meeting, and hosts the largest assembly of experts in the field of congenital cardiac anesthesia as well as experts in cardiology, cardiac intensive care medicine and congenital cardiac surgery. With national and international attendees and speakers, our meeting provides a platform that includes scientific lectures, the latest updates in anesthesia, cardiac surgery and perfusion, interactive discussions regarding the overall management of patients with congenital and acquired heart disease as well as hands-on workshops on complex themes. Year after year the annual meeting is intellectually stimulating, collegial and fosters the multidisciplinary nature of our subspecialty. As we move forward, the CCAS is dedicated to producing a high quality meeting that delivers state-of-the-art and innovative information aimed at improving the care of patients with congenital heart disease.

*Society of Thoracic Surgery - Congenital Cardiac Anesthesia Society Database*

The infrequency of anesthesia related events, and the variability of practice among institutions caring for children with CHD, makes the establishment of guidelines and improvement of quality-of-care challenging. As an integral part of the CCAS mission and commitment to patient care, outcomes improvement and research, a new multisite registry for congenital cardiac anesthesia was established in
2009 and incorporated as part of the STS database (9). The data harvest from this registry includes information on the anesthetic care of patients with CHD from over 50 institutions in North America, adding over 19,000 patients encounters annually with a current 100,000 entries to date (Figure 2). Institutional access to the CCAS database offers a unique opportunity for quality and outcomes information and research. The CCAS database is accessible for multicenter studies, data analysis and other studies for the establishment of guidelines and quality assessment and improvement. For example, a recent study using the CCAS database examined the perioperative use of dexmedetomidine in children with CHD (10).

Dolly Hansen Educational Fund

In 1973 Dr. Dolly D. Hansen (Figure 3) became the first pediatric cardiac anesthesiologist at Boston Children’s Hospital and, for the next 30 years, worked in the pediatric cardiac anesthesia division. In addition to being one of the first women in our specialty, Dr. Hansen was a true pioneer in congenital cardiac anesthesia. She was the first anesthesiologist to routinely provide anesthesia to children undergoing cardiac surgery with deep hypothermic circulatory arrest. She administered anesthesia for the first Norwood Stage 1 procedure in 1983, and co-authored its report in the New England Journal of Medicine. In addition, Dr. Hansen was an astute observer of physiology. She recognized that blunting of the surgical stress response in infants during cardiac surgery was essential for their survival and published extensively in that area (11). During her extensive career she fondly became known as “the Mother of Pediatric Cardiac Anesthesia”, and devoted her entire career to enhancing the care of children with CHD. Upon her retirement, Dr. Hansen graciously donated funds for an endowed chair at Boston Children’s Hospital. Her wishes were that the funds would be utilized to provide education to generations of professionals caring for patients with CHD and to conduct research aimed at
improving the outcomes, and consequently the lives, of patients with CHD. The CCAS now holds a portion of these funds, and wishes to honor Dr. Hansen’s remarkable career and fulfill her requests through the Dr. Dolly D. Hansen Educational Fund. The Fund is intended to directly support the educational initiatives of the CCAS and provide pilot funding for research endeavors within the field of congenital cardiac anesthesia.

Conclusion

Today, patients with CHD, both children and adults, are commonly encountered and have more complex forms of heart disease that pose greater challenges in diagnosis and management. The CCAS was originally established in order to provide a resource for practitioners caring for both children and adults with CHD as the complexities of our field rapidly advanced. A significant part of our mission is to coordinate with and support the goals and objectives of other related societies. Today more than ever in our twelve years history, the CCAS is poised as a valuable resource for collaboration, research and innovation to improve the quality of care and outcomes for all patients with CHD.
References:

1. Shafer K, Gurvitz M. Evaluation of Health Care Quality in Adults with Congenital Heart Disease. Cardiol Clinics 2015;33:635-41


Figure Legends:

Figure 1:
CCAS membership 2005-2017

Figure 2:
Case and age distribution of the CCAS-STS Database 2012-2016.

CVS-CPB = cardiovascular surgery on cardiopulmonary bypass; CVS-NCPB = cardiovascular surgery non-cardiopulmonary bypass; CVS-VAD = cardiovascular surgery Ventricular Assist Device; CL-D = catheterization laboratory diagnostic; CL-I = catheterization laboratory intervention; EP = electrophysiology; NCS = non cardiac surgery

Figure 3:
Dr. Dolly D. Hansen.

Figure used with permission, courtesy of the Department of Anesthesiology, Perioperative and Pain Medicine at Boston Children’s Hospital.