Pre-op anemia management and hemoglobin optimization

Anemia in cardiac surgery is associated with poor outcomes. Perioperative blood transfusions have increased risks of infection, thrombotic events, and mortality. Various circumstances that are unique to cardiac surgery can make it difficult to establish a perfect process for anemia management—differing degrees of patient urgency, volume of surgeon workload, and emergent interruptions can result in varying time-durations to surgery. For our process, we attempted to find the earliest and most consistent point of contact within the patient pathway in order to maximize identification and length of available treatment time.

Assessment at 'Decision-to-Treat': At our facility, the Cardiovascular Surgery Referral Office is the first point-of-contact within the patient pathway in order to maximize identification and length of available treatment time.

ERAS®-Cardiac at STS

Daniel Engelman of Baystate Medical Center in Springfield, Massachusetts, USA, moderates a discussion on enhanced recovery after surgery (ERAS) for cardiac surgery. Filmed at the 2019 STS Annual Meeting in San Diego, California, the full interview is archived at www.jtcvs.org

>> WATCH VIDEO

In the News

August 8, 2019
WakeMed Health & Hospitals prepares patients before heart surgery to improve outcomes.

June 11, 2019
New Guidelines Provide First-Ever Blueprint for Enhancing Recovery After Cardiac Surgery

June 9, 2019
Television Interview: WGBY57 Connecting Point: "ERAS Cardiac Treatment Prevents Posts-Op Deaths"
WE ATTEMPTED TO FIND THE EARLIEST AND MOST CONSISTENT POINT OF CONTACT WITHIN THE PATIENT PATHWAY IN ORDER TO MAXIMIZE IDENTIFICATION AND LENGTH OF AVAILABLE TREATMENT TIME.

Contact for patients when they enter the surgical pathway. Nurse navigators within the office are responsible for assigning the patient to the surgeon and coordinating the process. The Nurse navigators are the ideal personnel to perform quick identification of “patients-at-risk” and trigger the Anemia Management referral, even before the patient was assigned to a surgeon.

Referral at Hemoglobin ‘trigger’: Nurse navigators screen charts for most recent lab results. Regardless of gender, patients with Hemoglobin concentration of less than 13.0 g/dL are referred to the Patient Blood Management (PBM) Program nurse. Additional at-risk criteria include patients who decline transfusion in their care.

‘Algorithmic’ approach to treatment: The PBM nurse receives the patient referrals and utilizing a ‘toolkit’ of resources, they perform more detailed anemia assessment. The treatment care plan is developed based on cause/degree of anemia and patient location/status. The use of iron therapy (PO and IV) and erythropoietin-stimulating agents (ESA) are shown to reduce the risk of RBC transfusion in patients undergoing cardiac surgery.5,6,7 For example, urgent in-patients awaiting surgery are triaged to receive intravenous (IV) iron or ESAs, whereas if time allows, treatment for non or semi-urgent patients waiting at home may include oral supplementation only. We exclude certain patients from consideration for ESA therapy, such as uncontrolled hypertension, excessive thrombosis risk, active malignancy, or untreated iron deficiency. The PBM nurse also consults and collaborates with indicated medical sub-specialties (e.g. nephrology or hematology) and maintains communication with the cardiothoracic surgeon’s office. Our PBM workflow is summarized in Figure 1. The perioperative course of the patients is then evaluated through a quality improvement initiative, which includes audit, outcome measurements, and analysis of cost-effectiveness.

COMPLICATIONS:
HOSPITAL ACQUIRED PRESSURE INJURY IN CARDIAC SURGERY PATIENTS
Charles M. Geller, MD, FACS, FACC, FACP, Upland, PA

Hospital acquired pressure injury (HAPI) is a common and costly complication during hospitalization. (Image 1) Cardiac surgery patients are at particular risk with a reported incidence as high as 29.5%. Patients who develop HAPI suffer from associated consequences including pain, infection, disability, and emotional distress. Additionally, the direct costs related to treating HAPI are significant including increased length of stay.

The Centers for Medicare & Medicaid Services has included stage III and IV HAPI as “never events” which adversely impact reimbursement for the treating facility. Because of the burden HAPI plays on both patients and healthcare organizations, prevention is critical. The first step in such prevention is the identification of the most important factors that render patients prone to HAPI development.

Multiple studies have examined intrinsic and extrinsic factors associated with HAPI evolution. Commonly cited risk factors include age, nutritional status, weight, acuity of illness, immobility, temperature, moisture, intraoperative hemodynamic status, length of procedure, proper use of positioning devices, and comorbid conditions including diabetes mellitus and peripheral vascular disease. The main physical risk factors are pressure mediated by compressive and shearing forces as well as tissue tolerance. Risk assessment is the first step for prevention, however, the most widely used Braden scale has low predictive validity and other scales investigated within a cardiac surgery population were not satisfactory. The relatively high incidence of HAPI among cardiac surgery patients suggests that typical prevention methods are insufficient for this population.

A limited number of studies have investigated the utilization of prophylactic placement of silicone foam dressings to prevent HAPI in cardiac surgery patients. (Image 2) These dressings allow for the redistribution of pressure over a larger area, translation of shear forces beyond the immediate region, reduction of friction, and maintenance of a balanced microclimate. In conjunction with a comprehensive skin care program, this simple and low cost intervention has been associated with a marked reduction in the incidence of HAPI. Application of silicone foam dressings can result in significant cost savings, length of stay reduction, plus improved patient, family and staff satisfaction.

NURSING:
ERAS PROGRAMS FOR CARDIAC SURGERY AND NURSE ANESTHETIST EDUCATION
Kendall MacDonald BSN, RN, SRNA, CCRN, University of Pennsylvania DNP-NA 2021

Multidisciplinary involvement is the hallmark of successful ERAS programs. Integrative participation in educating Student Registered Nurse Anesthetists (SRNAs) allows for better understanding of each part of the cardiac surgery ERAS process, ultimately producing a more well-rounded clinician upon program completion. Pennsylvania Hospital’s Cardiac Anesthesia Department, in conjunction with the Cardiac Surgery Team, has embraced this thinking and provides a novel experience for anesthesia trainees involved in care of the cardiac surgery patient.

Certified Registered Nurse Anesthetists (CRNAs) are a vital part of the team providing care to the cardiac surgery patient in the operating room. Many cardiac programs throughout the United States employ CRNAs in a care team model with physician anesthesiologists to deliver anesthetic care. Education on ERAS for cardiac surgery should start during training. “Beginning Jan. 1, 2022, all students matriculating into an accredited program must be enrolled in a doctoral program” (AANA, 2019). With the change from a two-year master’s anesthesia education program to a three-year doctoral program, opportunities for further specialized experiences like this can be cultivated. Allowing SRNAs to train in facilities where cardiac ERAS programs are implemented can help to disseminate cutting edge, evidenced based practice to a future generation of CRNAs interested in cardiac anesthesia.

Exposure to ERAS in the cardiac surgery population during training can make the transition to practice easier for the new CRNA than for those trained in institutions using traditional methods of cardiac anesthetic management. Early buy-in to ERAS techniques during the education process can help shape the way individuals practice for the entirety of their career. Accredited CRNA programs should seek out partnership opportunities with cardiac centers of excellence and include the fundamentals of ERAS for cardiac surgery in their education curriculum for cardiac anesthesia.


>> VIDEO
Filmed at the 2019 STS Annual Meeting in San Diego, California, Daniel Engelman of Baystate Medical Center in Springfield, Massachusetts, USA, moderates a discussion on enhanced recovery after surgery (ERAS) for cardiac surgery.

>> Watch the full interview CTSNet

RECENT PRESENTATIONS:

Review our presentations on our website
> erascardiac.org

REVIEW

**CTSNet: “Enhanced Recovery After Cardiac Surgery Part II: Intraoperative and Postoperative.”**
Daniel Engelman MD, Rakesh Arora MD, Michael Grant MD, Kevin Lobdell MD, and Louis Perrault MD
June 9, 2019

**REVIEW**

**CTSNet: “Enhanced Recovery After Cardiac Surgery Part I: Background and Preoperative Recommendations.”**
Daniel Engelman MD, Rakesh Arora MD, Edward Boyle MD, and Kevin Lobdell MD.
May 29, 2019

**REVIEW**

**CTSNet: ERAS Guidelines for Perioperative Care in Cardiac Surgery**
Daniel Engelman MD, Louis Perrault MD, Marc Gerdisch MD, Michael Grant MD, and Judson Williams MD.
July 24, 2019

OUTCOMES

**Evidenced or Entrenched**
Kevin Lobdell
December 12, 2018

**OUTCOMES**

**Reducing ICU Hospital Re-admissions after Cardiac Surgery**
Dan Engelman
December 10, 2018

REVIEW

**Fast Track Cardiac Surgery Revisited and Enhanced**
Richard Engelman
December 12, 2018

IMPLEMENTATION

**Implementing an ERACS Program**
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**Modern Chest Tube Strategies to Reduce Complications and Costs**
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**Options for Sternal Closure and Prevention of Wound Infection**
Marc Gerdisch
December 12, 2018

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**Multimodal Approaches to Reduce Postoperative AKI**
John Kellum
December 12, 2018

UPCOMING MEETINGS:

September 26-28th, Baltimore
- **16th Annual STS Multidisciplinary Cardiovascular and Thoracic Critical Care Conference, MD**
- Critical Care and ERAS focused

October 3-5th, Lisbon, Portugal
- **33rd European Association for Cardio-thoracic Surgery (EACTS)**
- ERAS Cardiac Session

October 19-23rd, Orlando, Florida
- **American Society of Anesthesiologists (ASA)**
- ERAS Cardiac Session

November 15-17, Baltimore, MD
- **National Architecture of High Value Health Care Conference**
- ERAS workshop

November 14-16, New Orleans, LA
- **3rd Annual ERAS USA Congress**
- ERAS Cardiac participation

January 25-28th, New Orleans, LA
- **56th STS Annual Meeting**
- ERAS Cardiac sessions

April 18-22nd, West Palm Beach, Florida
- **42nd Annual Meeting Society of Cardiovascular Anesthesiologists (SCA)**
- ERAS Cardiac Workshop and Session

April 25-28, NY, NY
- **100th AATS Annual Meeting**
- ERAS Cardiac sessions

Some of the Executive Board Members at AATS in Toronto Spring 2019
ERAS®-Cardiac Society Members

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Who we are
ERAS® stands for Enhanced Recovery after Surgery, and we improve surgical care and recovery through research, education, audit, and implementation of evidence-based practices. In early 2017, a group of cardiac surgeons, anesthesiologists, and intensivists first met to establish the Enhanced Recovery After Cardiac Surgery (ERACS®) Society to achieve these goals for patients undergoing heart surgery. This initial organization’s work led to the publication of the first-ever expert consensus recommendations for a cardiac surgical enhanced recovery protocol. We have since joined with the ERAS® Society and have established an organization of multinational experts representing all aspects of healthcare delivery.

ERAS® Cardiac is a non-profit organization with the mission to develop evidence-based expert consensus statements promoting best practice recovery practices. The goal is to provide hospitals with better guidance for developing local protocols that are part of a continuous quality improvement process for better patient care, and reduce postoperative complications and costs after heart surgery.

ERAS® Society
The ERAS® Society is an international organization with enhanced recovery guidelines for several surgical sub-specialties. Beginning as the ERAS® Study Group in 2001, team leaders Professor Ken Fearon (University of Edinburgh) and Professor Olle Ljungqvist (Karolinska Insitutet) spearheaded the developments made in multimodal surgical care. The ERAS® Study Group soon discovered that there were a variety of local traditions in practice, as well as an inconsistent application of evidence-based best practices. This prompted the group to examine the process of change from tradition to best-practice. Since its inception, the ERAS® Society has expanded to include several subspecialties, emphasized the benefits of standardized best-practices across the continuum of the perioperative period, highlighted the importance of data-driven self-evaluation, and promoted the improvement of patient care.

Our Organizational Structure
Our ERAS® Cardiac Society is made up of experts from around the world, including participation from all members of the healthcare team. Our members strive to implement enhanced recovery principals at their local institutions while advancing improved patient care internationally through collaboration, education, and dissemination of up-to-date knowledge regarding optimal perioperative care. Our organization is divided into an Executive Board, Advisory Board, and a pool of Subject Matter Experts.

Corporate financial support will be used to promote the mission of the ERAS® Cardiac Society. We are committed to standardizing best practice surrounding the preoperative and perioperative care of cardiac surgical patients through expert consensus, review of the literature and open communication. This unrestricted support does not represent the ERAS® Cardiac Society’s support or agreement to promote any pharmaceutical, device, or technology related to the sponsors.

For more information and to become a sponsor please contact: V. Seenu Reddy, MD, MBA, Director of Sponsor Relations, ERAS® Cardiac Society
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For more information:
To learn more about our organization, including our board members and upcoming meetings: WWW.ERASCARDIAC.ORG

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