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News

STS Press Release

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New Clinical Practice Guideline Addresses Use of Blood Thinners During Heart Surgery

Leading societies release first comprehensive guideline of its kind

CHICAGO (January 19, 2018) — The Society of Thoracic Surgeons (STS), the Society of Cardiovascular Anesthesiologists (SCA), and the American Society of ExtraCorporeal Technology (AmSECT) released a new clinical practice guideline that includes major recommendations for the use of blood thinning medication (anticoagulants) during heart surgery. The guideline was published online today in *The Annals of Thoracic Surgery* and in two other journals.

“It is our hope that these guidelines will help clinicians practice consistent and safe anticoagulation and that there will be more standardization in practice,” said lead author Linda Shore-Lesserson, MD, of North Shore University Hospital in Manhasset, NY. “Surgeons, anesthesiologists, and perfusionists will better appreciate the science behind the practices that they conduct every day.”

Cardiopulmonary Bypass and the Role of Anticoagulation

Anticoagulation therapy is critically important during cardiopulmonary bypass (CPB), a technique that temporarily takes over the function of the heart and lungs during heart surgery. The blood is removed from the body, sent through the CPB pump (also known as the heart-lung machine), and then returned to the body, bypassing the normal pathway of blood through the heart and lungs. This allows heart surgeons to have ideal operating conditions, while maintaining artificial heart and lung function. Exposing the blood to the artificial surfaces of the heart-lung machine and its components, however, predisposes the blood to clotting. As a result, the clotting ability of the blood must be inhibited by blood thinning drugs (such as heparin) and reversed at the end of the procedure with agents such as protamine—a strategy that allows heart surgery to be conducted safely and successfully.

Practice in this area has been highly variable and without standardization when it comes to medication doses and the optimal degree of anticoagulation used during CPB. Recognizing the large scope of practice and the varied nature of the evidence supporting the use of CPB, STS collaborated with SCA and AmSECT to address the gap regarding the use of anticoagulation treatment during CPB.

“Until now, there has been no standardization of this important practice or the use of these anticoagulant drugs,” said Dr. Shore-Lesserson. “These recommendations will help fill the evidence gap and establish best practices in anticoagulation therapy for cardiopulmonary bypass.”

STS believes that the practice of summarizing current scientific evidence into clinical practice guidelines and recommendations may contribute importantly to improving surgical outcomes, as well as the quality of patient care. In this case, to identify relevant evidence, a systematic review was outlined and extensive literature searches were conducted by a workgroup. The group then wrote and developed recommendations based on the critical appraisal of almost 100 highly cited articles that were included in the final review.

“This study examined the relevant existing literature on anticoagulation and its reversal and synthesized cogent recommendations for the clinicians,” explained Dr. Shore-Lesserson.

The new clinical practice guideline offers evidence-based recommendations that include:

- Optimal heparin dosing for initiation and maintenance of cardiopulmonary bypass;
- Identification of contraindications to the use of heparin;
- Options for alternatives to heparin; and
- Ideal methods for reversal of anticoagulation after CPB.

Dr. Shore-Lesserson said that even with these new guidelines, “more and better evidence” needs to be generated to answer many questions that clinicians still may have, especially in the area of alternative drugs to heparin. According to Dr. Shore-Lesserson, heparin and protamine have been cardiac surgery staples for more than 50 years and remain the gold standard, but “they are not perfect.” So a call to action is now in place for investigators to conduct important prospective scientific trials and meta-analyses so that new knowledge is generated.

“We hope that this guideline will stimulate investigators to conduct more research and to expand on the evidence base regarding anticoagulation therapy for cardiopulmonary bypass,” said Dr. Shore-Lesserson.

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Shore-Lesserson L, Baker RA, Ferraris V, Greilich PE, Fitzgerald D, Roman P, and Hammon J. The Society of Thoracic Surgeons, The Society of Cardiovascular Anesthesiologists, and The American Society of ExtraCorporeal Technology: Clinical Practice Guidelines—Anticoagulation During Cardiopulmonary Bypass. DOI: 10.1016/j.athoracsur.2016.10.076.

Link to Guideline: [www.annalsthoracicsurgery.org/article/S0003-4975\(17\)31478-9/fulltext](http://www.annalsthoracicsurgery.org/article/S0003-4975(17)31478-9/fulltext)

For a copy of *The Annals* article, contact Jennifer Bagley at 312-202-5865 or jbagley@sts.org.

About STS and *The Annals of Thoracic Surgery*

Founded in 1964, The Society of Thoracic Surgeons is a not-for-profit organization representing more than 7,100 cardiothoracic surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. The Society’s mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy.

The Annals of Thoracic Surgery is the official journal of STS and the Southern Thoracic Surgical Association. It has an impact factor of 3.700.

About SCA and *Anesthesia & Analgesia*

The Society of Cardiovascular Anesthesiologists (SCA) is an international organization of physicians that promotes excellence in patient care through education and research in perioperative care for patients undergoing cardiothoracic and vascular procedures. SCA is the only organization uniquely dedicated to the continuing education, professional development, and interests of subspecialists in cardiovascular and thoracic anesthesiology. The Society serves the needs of more than 2,000 members by working on programs and initiatives in professional education, clinical research, training, and practice issues. *Anesthesia & Analgesia* is the "Gold Standard in Anesthesiology," providing practice-oriented, clinical research. Each monthly issue offers peer reviewed articles on the latest advances in drugs, preoperative preparation, patient monitoring, pain management, pathophysiology, and many other timely topics. For more information, visit www.scahq.org.

About AmSECT and the *Journal of ExtraCorporeal Technology*

The American Society of ExtraCorporeal Technology (AmSECT) fosters improved patient care and safety by providing for the continuing education and professional needs of the extracorporeal circulation technology community. AmSECT's *Journal of ExtraCorporeal Technology* is the premier source of the most current research and information related to extracorporeal technology including cardiopulmonary bypass, extracorporeal life support, mechanical assist devices, and perioperative blood management. Its editorial board is comprised of leaders in the field from 11 countries. The *Journal* is the longest continuously published periodical in the field of perfusion and has served as the official publication of AmSECT since 1967. For more information, visit www.amsect.org.