



AmSECTOMORROW

THE NEWSROOM

Interview with Chief Perfusionist Craig Kalin, CCP, LP

BY HOLLY LACY, EMORY



H: What is your educational background and what motivated you to become a perfusionist?

C: I have a Molecular and Cellular Biology degree from the University of Arizona. I have a degree in Allied Health with a certificate in Perfusion from The Ohio State University. I just received my Masters in Cardiovascular Perfusion Science from the Medical University of South Carolina. I was on the fence about going to medical school. I wasn't mentally prepared to spend the next 7-10 years going to school and training. It was my dad who actually motivated me to become a perfusionist. My dad was a critical care and cardiac anesthesiologist who worked with perfusionists. I was able to go watch cases and shadow the perfusionists, which I found exciting.

H: As the chief perfusionist at Emory University Hospital, could you briefly describe what a typical day looks like?

C: A typical day will start with checking the schedule first thing in the morning and ensuring we don't have any add-on cases and have appropriate staffing for all the morning cases. Then, depending on the meeting schedule for the day, I will determine if I can do a case. As the morning progresses, I will check the inventory and see if any supplies have come in. Throughout the rest of the day, I will keep track of cases and adjust staffing accordingly.

H: As one of Emory University's perfusion simulation instructors, what got you interested in education?

C: Emory University Hospital has always had clinical rotations for various perfusion schools, so teaching and precepting are part of the job. I think what has interested me in working in the simulation lab is having the opportunity to help perfusion students set their perfusion foundation and prepare them for clinical.

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H: Emory University Hospital was the 2023 recipient of the AmSect Pillar Award for perfusion excellence. Can you elaborate on some of the safety initiatives within your department?

C: The Pillar Award was a good exercise. We had to take a step back and look at all our protocols and make sure we were up to date. We also had to look and make sure we were working within AmSECT standards and guidelines. We had a lot of safety measures in place already, but one area we did have to get better at was making sure we had a backup console for all the mechanical circulatory support (MCS) devices in the ICU.

H: Is there any advice you can give current perfusion students going into clinical rotations?

C: Perfusion school offers students the knowledge they need to be a perfusionist. Clinical rotations teach them how to be a perfusionist.

“Don't stress about not having seen something or not knowing how to do some procedure. That's what clinicals and all your preceptors are for.”

H: As we look towards the future, how do you see the field of perfusion changing?

C: There will always be a need for perfusion. What I see happening is perfusionists are having to expand their skills and knowledge to take on the increase in heart failure, transplants, and the growing list of new MCS devices coming out. It's not all about running the pump anymore. You need to be able to manage ECMO circuits, VADs, and organ procurement circuits for DCD and NRP.

PUMP UP THE VOLUME



AmSECT student council Heartwalk Fundraiser 2023. Thank you to everyone who donated! Photo Credit: Anita Parker

STUDENT SPOTLIGHT



LAUREL EGARTER

University of Pittsburgh Medical Center

"Being a Student Member of AmSECT has enhanced my time as a perfusion student. Perfusion is a small community with so much to learn from others."



@amsectperfusion

Congratulations to Anita Parker, winner of the 2023 Perfusion Without Borders Scholarship!

It is an honor to receive this year's PWOB Student Scholarship. This scholarship allows me to combine my passion for perfusion and global healthcare. Medical mission trips serve as a bridge between healthcare and underserved communities. They foster cross-cultural understanding and social responsibility while inspiring individuals to make a positive impact in this world. I am looking forward to working with PWOB!

★★★★★

AmSECT also provides the Perfusion Without Borders Student Scholarship, which is a fantastic resource for making more mission trips possible for students! <https://www.amsect.org/About/Awards-Designations-Scholarships/Cardiac-Missions/PWOB-Student-Scholarship>

62nd AmSECT International
New Orleans, LA
March 20-24, 2024 Sheraton New Orleans Hotel
Registration Now Open!
[amsect.org](https://www.amsect.org)

This is a great way to make connection with other students and perfusionists! Make arrangements now! Don't forget to register your class or team for the perfusion bowl!

Exciting things are happening in the AmSECT Student Council. Come Join in on the fun!

https://docs.google.com/forms/d/e/1FAIpQLSci_Q1lf-f4PjJnD1kEddjEJRz_qSC1_62LgAZgTSIOFB61eg/viewform

Trivia Question: What are the 5 ways to increase cerebral stats?

Answer on bottom of this page!



Students at the fall 2023 PSPS Conference
Photo Credit: Laurel Egarter

BACK TO THE STACKS



BY ERIN TOBIN, MUSC

Cold Agglutinins

Imagine this... you're on bypass and have just given cold anterograde cardioplegia. Next thing you know you begin to see agglutinations in your cardioplegia heat exchanger. What is happening? It could be due to cold agglutinins.

What exactly are cold agglutinins (CA)?

CAs are autoantibodies (mainly IgM) against red blood cells that will cause agglutination and hemolysis at low blood temperatures.

CA vs. Cold Hemagglutinin Disease (CHAD)?

Typically, everyone has some level of CA in their body, however, often times their effects are never felt because blood temperatures never reach a cold enough temperature to induce activity. Cold hemagglutinin disease on the other hand, is when CA form and are able to have activity at temperatures that may be achievable in the body (maybe due to environmental exposure to cold or from induced hypothermia during surgical procedures). CHAD may occur at temperatures ranging from 30 degrees Celsius all the way up to 37 degrees Celsius! Compared to "normal" CA that are commonly activated at temperatures 25 degrees Celsius or lower.

How would hemolysis occur?

When agglutination begins at these low temperatures, complement fixation can take place on red blood cells. However, the effects of complement cannot be felt at these low temperatures. Therefore, when the body is rewarmed complement activation can take place and lead to extravascular hemolysis.

Impacts on Cardiopulmonary Bypass?

Procedures requiring hypothermia or cold cardioplegia delivery while on bypass may be too risky for patients with high CA titers or exhibiting pre-operative symptoms of CHAD.

What preventative measures can we take?

1. Always try to assess patient risk prior to surgery (CA titers, patient symptoms, etc.)
2. In high-risk patients pre-operative plasma exchange or pharmaceutical interventions (rituximab, glucocorticoids, cyclophosphamide) may prove useful at reducing CA titers.
3. Intra-operatively, the most common approach is to proceed under normothermic conditions and to use warm blood cardioplegia
4. Avoiding cardioplegia when possible is also another suggested approach to mitigate risk

Barbara, D. W., Mauermann, W. J., Neal, J. R., Abel, M. D., Schaff, H. V., & Winters, J. L. (2013). Cold agglutinins in patients undergoing cardiac surgery requiring cardiopulmonary bypass. *The Journal of Thoracic and Cardiovascular Surgery*, 146(3), 668–680. <https://doi.org/10.1016/j.jtcvs.2013.03.009>

THE HEART ROOM



Submission by Charlotte Clonts

BY CHARLOTTE CLONTS, UTAH



Aberrant Right Subclavian

The patient was an older female with a history of hypertension, hyperlipidemia, and anemia. CT showed an anatomical defect of an aberrant right subclavian. The plan was to do an AVR Root replacement with Hemiarch reconstruction. After initiating bypass we began cooling to 26 degrees Celsius using Nasopharyngeal temperature as our main temperature source per md preference. Using the native ostia, we would administer a full initial dose of Del Nido cardioplegia -- for this case we gave 1800ml calculated off 20 cc/kg. After we got to the nasopharyngeal temperature of 26 Celsius we initiated circulatory arrest. We hemoconcentrated 1200 ml off the circulatory volume as the patient was volume-overloaded due to poor circulation. Circulatory arrest time was 22 minutes. After reinitiating full flow on bypass, we continued monitoring blood gases and did not end up redosing cardioplegia. The patient was thoroughly rewarmed to 37 Celsius and successfully weaned from bypass. There is an article that I found very helpful for this specific anomaly when considering the use of antegrade cerebral perfusion. I will list the article referenced below.

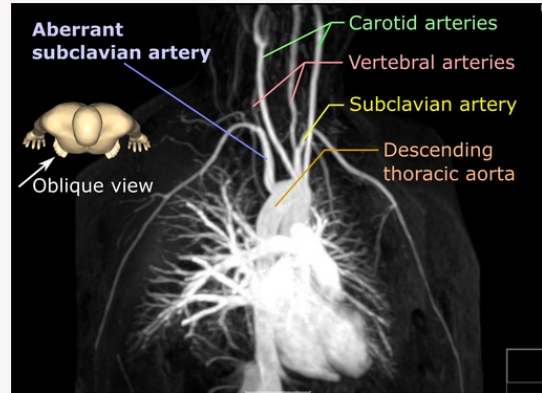


Figure 1.

To summarize: Patients with an Aberrant Right Subclavian (ARSA), see Figure 1, have an anatomical anomaly where the right subclavian branches off the opposite side of the aorta. These patients are at high risk for life-threatening tracheal compression. A different cannulation approach is needed when performing antegrade cerebral perfusion. Patients with ARSA, providing blood flow from the right axillary cannula to the right common carotid artery is not possible and in patients with acute dissection, if this anomaly goes unnoticed the initiation of ACP could be catastrophic. Options for cannulation are: Direct carotid artery for cerebral protection, or the surgeon should carefully inspect the aortic arch for anomalies and, if there is any sign of ARSA, he can perform cannulation of the right and left common carotid arteries for cerebral perfusion.

<https://www.annalsthoracicsurgery.org/action/showPdf?f?pii=S0003-4975%2813%2900159-8>

GOOFS & BLUNDERS

BY MEGAN CRIDER, UNMC

"Nobody touch another bottle of Albumin!"

I was pumping a case with the chief of perfusion at my first rotation this year. We had a great case; however, we struggled with volume the entire time. I stood up to open an Albumin bottle while talking to the perfusionist. I went to continue hanging the bottle, opening the clamp, and letting it go into the reservoir when the surgeon looked up and said, "What is this?". I look up, and he is grabbing a yellow circular cap that had landed on the sterile field about an inch from the chest opening. My albumin cap was nowhere to be found. I looked at the chief and said, "I think that's the lid to the Albumin." My heart sank as I turned around and announced to the surgeon he was looking at the lid that I had popped off the bottle. To my surprise, the surgeon was cool about it. He laughed, covered the contaminated spot with a sterile drape, got a new instrument and gloves, and moved on. About 5 minutes later, we heard a huge crashing sound from anesthesia. The CRNA had dropped a huge bottle of Albumin onto the ground, shattering glass and Albumin all over the floor. The surgeon looked up and said, "What is going on with the Albumin today! Please, will nobody else touch another bottle of Albumin the rest of the case!".

I felt a vital lesson was learned -- **when opening medications or supplies, turn away from the sterile field** and watch out for those crazy Albumin bottles!

THE RESERVOIR

AmSECT Student Membership

Student membership is now FREE! Register now and become an official part of the perfusion community.

<https://www.amsect.org/Members/Student-Corner>

Have a Perfusion blunder you want to share?

Please email charlotte.clonts@utah.edu to have your blunder included in the next issue!

Additional Resources:

The AmSECT website has a helpful page with information about different charitable organizations that provide cardiac care:

<https://www.amsect.org/About/Awards-Designations-Scholarships/Cardiac-Missions/Charitable-Organizations>

Before you go...

The AmSECT Student Council exists to promote student involvement within AmSECT. While our current members hail from 14 different programs, our goal is to have **every** perfusion program in the country represented on the council. Our major projects include an annual fundraising event and this very newsletter, with multiple opportunities for student leadership.

Our current officer team consists of a president/chief student liaison, vice president, fundraising project lead, communications coordinator, and newsletter editor. The Student Council meets monthly via Zoom for one hour, so the time commitment designed to be manageable!

INTERESTED IN JOINING THE STUDENT COUNCIL?

PLEASE EMAIL AMSECTSTUDENTHQ@GMAIL.COM AND BE SURE TO INCLUDE YOUR CONTACT INFORMATION. SHARE YOUR VOICE, DEVELOP YOUR NETWORKING AND LEADERSHIP SKILLS, AND BECOME INVESTED IN THE PROFESSIONAL DEVELOPMENT OF OUR FIELD! WE LOOK FORWARD TO SEEING YOU JOIN THE TEAM.