HTRS Member Spotlight

20 Questions Interview with Bryce Kerlin, MD

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Getting to Know You

1) Did you have a nickname while growing up? If yes, what was it and the story behind it?

Andy. My middle name is Andrew, so it's kind of obvious. But only my grandfathers, father, and his best friend called me "Andy." Nostalgically, we named our first son Andrew so he could go by Andy. When he was about 3 years old, I called him Andy and he looked at me and said very definitively, "My name is Andrew." We don't call him Andy anymore.

2) What was your favorite activity or hobby while growing up?

Watersports. My grandparents had a small lake cottage in northern Indiana where we wiled away our summer swimming, fishing, waterskiing, tubing, etc.

3) What interests do you pursue in your free time now?

I still love being on or near the water. We live near a large reservoir just north of Columbus in Ohio. We are active members of our local sailing club on Alum Creek Lake where we dock our sailboat, a Precision 23 called "Sanity." If you don't find us at home or on the boat, then we will probably be traveling.

4) If you could bring one book to a desert island, what would it be and why?

JRR Tolkien's *Lord of the Rings*. I hope I get to bring all three parts of the trilogy.

5) If you could bring one movie?

Caddyshack. It is a comedic masterpiece. At one point in high school the cross-country team, including yours truly, had the whole movie memorized and would take parts and recite it for laughs.

6) If you could live in another time or era, which one would you choose and why?

The 1860s in the USA. The history buff in me is fascinated by the Civil War era. The war was gruesome and cruel, so my interest is not in being directly involved in the fighting, but rather better understanding the politics of the time.

7) If you could invite four people, living or dead, for dinner at your house, who would they be and why?

Abraham Lincoln, Ulysses Grant, Thomas Jefferson, and Benjamin Franklin. The first two are obvious based on my last answer. I would be interested in the opinions of both the founding fathers and the Civil War era notables on the evolution of our nation into what it has become. The state of (ongoing) racism in our nation and the stalemate (and dysfunction) of our Congress would be interesting discussion topics. What would they propose to fix these issues or may have written differently into our Constitution to avoid these outcomes?

8) What place in the world would you like to visit for the first time?

Greece – I want to sail the islands at a leisurely pace for about a month.

9) Pretend you have decided not to pursue a career in medicine. What alternate career path would you choose?

I would probably be a mechanic. My father ran a lawnmower repair service out of our garage. I paid my way through college fixing small engines in that shop and haven't paid for much engine service in my adult life. Ironically, getting that hands-on experience with how mechanical pieces and parts fit and worked together turned out to be formative to my research career because I think it taught me how to develop a mental picture of the way in which various biological

molecules fit and work together in four dimensions.

10) A genie in a bottle gives you three wishes. What would you wish?

I would first wish for a cure for sickle cell disease, I hope we're getting closer to that. The more experience I gain as a hematologist, the more I realize just how devastating this disease is and I often wonder how many potentially great minds and influencers humanity has lost to it over the years. My second wish would be for our nation to reinvest in science and healthcare policy. It made us great once and set us apart from the rest of the world, it can do so again, but our leaders must embrace it to overcome the scientific denialism and conspiracy beliefs that are running rampant. My third wish would be for unlimited wishes, obviously.

Your Brilliant Career

1) Who were the mentors who inspired you to choose non-malignant hematology as a career?

I pursued Clinical Laboratory Science in my undergraduate studies and spent a year working in a community hospital laboratory before going to medical school. I most enjoyed the hematology and blood bank sections of the lab and went away to medical school thinking I wanted to become a hematopathologist. I had a bit of an identification crisis when I realized that I didn't enjoy my pathology rotation in the least. The "moment" came several months later while working with Dr. Joan Cox Gill in the pediatric hematology clinic as a third-year medical student. We saw a child in her clinic for anemia and as I presented the case we went across the hall to look at his blood smear. I remember sitting down to the double-headed microscope and she began to teach me how to look at a peripheral smear, like I'm sure she had a thousand times before. When we got to the red blood cell portion, I said something to the effect of "Well, wouldn't it be all those spherocytes that are the problem?" I'll never forget how she looked up at me over the top of the scope and asked what my background was. We made the presumptive diagnosis of hereditary spherocytosis and went back to discuss the diagnosis and plan with the family. It was the perfect blend of what I had already learned and how I could both expand upon it and apply it as a physician. I was fortunate to later train as a fellow under Dr. Gill's capable tutelage as well as Drs. Bob Montgomery, Paul Scott, Cheryl Hillery, and other classical pediatric hematology luminaries in Milwaukee.

2) What do you enjoy most about your career today?

Trainees. I really enjoy nurturing and watching them have their own "a-ha" moments when they discover something new or realize how the bigger puzzle fits together for the first time.

3) What do you enjoy least about your career today?

Two things, really. Firstly, meetings, meetings, and more meetings. The only thing a meeting is good for is acquiring new work. Meanwhile, there are so many meetings that you rarely seem to have time to just do the work. The second is the electronic medical record. Turning physicians into data entry technicians really has taken all the joy out of the practice of clinical medicine.

4) Describe a highlight of your career to date.

I was fortunate to work on fruitful basic science projects as a fellow in Dr. Hartmut Weiler's highly productive lab. We made novel observations about the role of factor V Leiden and hyperfibrinogenemia in inflammation. Our work on factor V Leiden was very exciting and the most interesting part was recognition that heterozygosity was protective, but homozygosity was not. This work led to a plenary paper in *Blood* and several years later, after I was no longer working on the project, the team had the number 1 abstract at ASH explaining the underlying mechanisms.

5) What scientific or clinical publication in your field has been most influential to your clinical practice and/or research?

My clinical practice is focused on pediatric thrombosis treatment and management, so the anticoagulation guideline publications are a very important resource. It would help, of course, if we had more high-level data in pediatrics that we could rely upon in lieu of extrapolations from the adult data. With the recent completion of Einstein Jr, it looks like we may finally be headed in that direction. Scientifically, my lab's study of thrombin signaling in glomerular disease has most been influenced by a Blood paper examining the effects of coagulation activation on diabetic nephropathy, published in 2011 by my friend and colleague, Berend Isermann's lab.

6) Which of your research studies or publications are you most proud of?

My lab has spent the past several years trying to understand the role of coagulation enzyme signaling in glomerular disease – a leading cause of kidney failure. Because the glomerulus is the kidney's primary filter unit that retains plasma

proteins in the vasculature but allows waste products through, glomerular disease often causes massive urinary losses of plasma proteins, including coagulation factors. We have spent the last several years trying to understand the consequences of pathological urinary coagulation factor activity. Our most important and exciting discovery thus far is that urinary (pro)thrombin drives injury of glomerular cells called podocytes. In fact, we have now been able to show that we can dramatically reduce the signs and symptoms of glomerular disease in animal models by antagonizing (pro)thrombin, including with the use of direct oral anticoagulants. Our initial observations were published in the *Journal of the American Society of Nephrology* and much of the remaining work has been presented at society meetings and will (hopefully) soon be published.

7) What assay do you find the most problematic to do and/or interpret for patients?

Platelet aggregometry. Every lab does this assay differently, it is highly sensitive to pre-analytic variables, and interpretation is messy. Much work has been done by Dr. Hayward and her NASCOLA colleagues to standardize both the assay and its interpretation, but it seems like implementation of these standards at most labs continues to be less than desirable.

8) What has changed in medicine for the better and for the worse since you completed your training?

The continued emphasis on maximizing the business of medicine by both insurers and hospitals has significantly hampered the delivery of best care. Meanwhile, our improved understanding of the molecular mechanisms of disease have enabled better and better therapies that are both specific and more effective than previous approaches.

9) What do you predict will be the next major advancement in your field?

The next major advancement in thrombosis management will likely come from an improved understanding of the molecular and cellular vascular biology of post-thrombotic syndrome. The ATTRACT and SOX trials have demonstrated that early thrombus clearance and augmented venous pressure, respectively, either have no influence or a minor influence on ultimate venous function after DVT. What we really need to understand is the response of the vessel wall components in order to unravel the mechanisms that drive dysfunction and vs. recovery so that we can develop therapeutics targeting the desirable responses. Ultimately, we hematologists will need to embrace vascular and extravascular biology to fully

understand the basis of this and other long-term sequelae of thrombosis.

10) What words of guidance would you give fellows contemplating a career in non-malignant hematology?

Follow your passion. Then, identify a niche that no one else is working on actively and cultivate that niche as your area of expertise and research.