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Investigating Keys to Minimizing the Risks of Vascular Access

Announcer:
You're listening to ReachMD, and this episode of *Vascular Viewpoints* is sponsored by Becton, Dickinson and Company. Here's your host, Dr. Charles Turck.

Dr. Turck:
This is Vascular Viewpoints, and I'm Dr. Charles Turck. Joining me to share new insights on risk mitigation in vascular access and how they inform our best practices is critical care pharmacist, Dr. Judith Jacobi, senior consultant with Visante Pharmacy Consulting Services. Dr. Jacobi is past president of the American College of Clinical Pharmacy as well as the Society of Critical Care Medicine for which she was the first pharmacist to serve in that role. Dr. Jacobi, thanks for being here today.

Dr. Jacobi:
My pleasure.

Dr. Turck:
To start Dr. Jacobi, can you give us a framework for how you organize and prioritize risks stemming from vascular access procedures?

Dr. Jacobi:
Well as a critical care pharmacist who practiced at the bedside my priority and my focus has always been around medications, and certainly learning about safe medication administration and the type of devices required to accomplish safe medication administration was a big part of my focus and contribution to vascular access and our vascular access team. But it really kind of starts right at the basic level of choosing a peripheral I.V., creating a system where bedside nurses or the vascular access team are well trained for the use of proper insertion techniques, aseptic techniques for best insertion practices to really create a scenario where even a peripheral I.V. is placed with the ultimate care and the greatest safety and then hopefully can remain in place with good device securement regular inspections, and proper utilization.

Through the midline catheters, if they're used, need to be treated as if it is a peripheral, certainly for medication administration and certainly afforded proper and routine inspection for any problems such as occlusion, arm swelling or leakage.

Ultimately to central lines where we need to have the greatest degree of organization vascular access teams certainly are very responsible and create great scenarios for PICC line insertion. But our bedside clinicians who are inserting temporary central lines need to have structure and process around that for the best insertion technique and prevention of catheter-related bloodstream infections.

Dr. Turck:
Where do the current vascular access guidelines land on risk mitigation? Is there a heightened focus on any factors in particular, like vascular access team compositions, device selections, or protocol development?

Dr. Jacobi:
All of the above. So the Infusion Nurses Society recently published an update of their standards and have a practice guideline that usually goes with it. And they've addressed all of those issues. And I think what's most apparent is how all these efforts are coalescing in many in many hospitals around the vascular access team. They started in many places just with things like PICC insertion, and perhaps went along and added midline insertions to their procedure group, but now they're really the drivers of patient safety. And in my experience, including a pharmacist as a resource to the vascular access team helps them develop a framework around which medications we're going to infuse and which site gets the pharmacy on board to be more cognizant of 'Alright, if we're going to use something like a midline, or even a peripheral I.V. for a vasopressor, let's make sure that the concentration is appropriate. Let's make

sure our nurses have a process in place to inspect the site using a standardized framework on a regular basis, perhaps every four hours.' All of the things that are going to be necessary to ensure that we infuse that drug safely and for the best care of the patient. Because what we've come to realize is that what's a routine procedure for us, isn't always routine for the patient, and they only have a fixed number of vessels. And so that notion of vessel health and preservation, I think is one of the biggest that has emerged in the last couple of years really focusing on the fact that it's not a one and done, and we'll worry about it again, the next time that we need to consider each patient and their long-term needs much more carefully.

Dr. Turck:
Let's move into the ways in which risk assessments inform vascular access device selections. In your experience, what are the most important factors guiding which devices to consider for central and peripheral vessels, respectively?

Dr. Jacobi:
So again, I'm going to always opt for medications, and in some ways, because that's the easiest. We can organize that information, put it in a table, and say if you're going to give this medication, here's the type of device that we advocate for you to use. What I think is much more challenging and data proof that, for example, a patient with some chronic kidney disease there are guidelines that suggest we avoid putting PICC lines in those patients because someday they might need a fistula for dialysis. Well, here we always, like any relationship weighing that risk and benefit, how likely is it that they're going to progress to end-stage renal disease and someday need a dialysis fistula versus our immediate needs to get a medication into the patient, perhaps to save their life now. And so, we have to weigh those factors. But it's much more challenging on a patient-by-patient basis for clinicians to stop and consider that potential long-term renal issue. And so certainly, although the advocacy is to be really careful if the creatinine clearance is less than about 60 or 65, we really got to be paying a lot more close attention as patients get well below a creatinine clearance of 50 mils per minute.

And so it's patient factors, such as their kidney function. What's their past vascular experience, what do they have available to us now, and what's likely to be their future experience? And so really the MAGIC guidelines years ago set out this framework and various sites have fine-tuned it. Depending upon the duration of our current treatments, and how long we need that I.V. access, that should be an important factor to dictate what type of device we're using as well.

So it's really very multifaceted, starting with the patient, moving through the current therapies, as well as them thinking of their long-term needs is a really important criteria.

Dr. Turck:
And in the spirit of achieving the right devices for the right patients at the right times, are there any common traps or pitfalls you see in critical care settings that pull us away from best practice?

Dr. Jacobi:
Well, urgency and emergency are always, really going to perhaps be the most overriding factor. And, over the years, clearly we evolved from in a very urgent emergent situation just slamming in any old I.V., getting a central line in place just so we'd have access, with really poor technique. And what we learned is that it doesn't take that long to use better technique in an emergency. But if it's not optimal technique, certainly in terms of central line insertion procedures, where we now have to worry much more about contamination of the catheter and the risk of central line associated bloodstream infections, or CLABSIs. I think we're just much more cognizant of the fact that if we didn't use the best technique, that's probably a line we shouldn't leave in place. But by all means, if we have time, let's use our best technique and minimize the number of times that we have to be invasive in inserting new devices. But you know, again, life is risk-to-benefit and if we need to do something to save someone's life we can deal with those consequences as long as we think about them properly. But clearly, having established insertion technique, bundles training of all clinicians who are going to insert lines is going to be essential for central lines. And perhaps if midlines are inserted by the care team, the same rules ought to apply.

Dr. Turck:
For those just tuning in, you're listening to *Vascular Viewpoints* on ReachMD. I'm Dr. Charles Turck. I'm speaking with Dr. Judith Jacobi about current priorities to minimize patient risks with vascular access procedures.

So Dr. Jacobi, let's turn to staffing and specialization needs for a moment, since there's a range of team structures out there and varying levels of familiarity with vascular devices. What are your thoughts on team modeling to help ensure device competency and patient risk reduction?

Dr. Jacobi:
Again, I think if you have an organized team where their focus is vascular access, then your processes and procedures have the potential to have much more priority and opportunities for continuous improvement. It's impossible to establish a perfect system overnight. And so reality is in any health system, we're probably going to start with the people who are passionate. We have

opportunities to get people trained and organized and include a multi-professional group, each using their own specialties, and develop more expertise as time goes on. Having lots of peripheral I.V.s inserted in patients, multiple attempts on the first time need to continuously great place those catheters is very expensive. And so there has been some good modeling done to say, you know what, we can invest in people who are well trained in vascular access to improve some of these procedures, we can invest in training our bedside nurses, and in the long run beyond helping patients, we're probably going to save money on the supply side as well. And so that model can be established. You kind of need that person with passion to lead it. In my experience, our vascular access nurses were really an outgrowth of our radiology department as a way to get more PICC lines inserted in patients and then ultimately midlines. And then they became essential parts of our patient safety initiatives cto improve a whole variety of endpoints such as CLABSI, improve peripheral access and various other projects.

Dr. Turck:
And how do the interprofessional collaborations between members of the vascular access care teams factor into choosing optimal intervention?

Dr. Jacobi:
So for me, it started very grassroots as a clinician pharmacist at the bedside in the intensive care units. I was regularly in discussion with our vascular access team members about needs of the patient. You know, certainly we would discuss these on rounds. Honestly, we haven't trained our medical residents and surgical residents as well as we probably hadn't at that time. Hopefully, it's better now. The person ordering a device needs to understand what they're ordering, why they're ordering it and what the long-term issues may be. And so organizing a process to order the device is an important first step as well as then if your residents are going to be inserting lines, they have to be trained and evaluated for their techniques, and then supervised along the way with the proper modeling.

And so, my involvement started very grassroots, and through the harms reduction team of which I was a member. And so it really developed into a much more formal relationship where I helped them create some of their processes and procedures. And hopefully that has continued since I left the bedside and established that role. cutI've made a call for hospital pharmacists, if they aren't just in the right place at the right time, to really seek out the members of their vascular access team and offer their services so that cwe can you establish those connections.

And then from the pharmacy end, give the information readily to the bedside nurses. If there's a medication that needs to be diluted before it's administered, put that information on the Medication Administration Record, so the nurse doesn't have to look it up. Make it easy for them to find information on I.V. compatibilities, or help them with that information. And establish a list of medications and the proper device used for administration. So, pharmacists can initiate a lot of that discussion as well. And they're the ones responsible for the drugs. And so I advocate for them to play a very active role.

Dr. Turck:
Going forward, are there any clinical reference guides or educational tools out there that you think clinicians really need to get their hands on to improve vascular access decision-making?

Dr. Jacobi:
Absolutely. And, luckily, there are lots of resources. The Infusion Nurses Society has a new published standards for 2021 that is available to their members or available to purchase. And so that certainly is a resource that each vascular access team should have. Going back to the MAGIC guidelines for some structure around central lines and potential duration of action certainly, that's an important framework. The National Coalition for I.V. Push Safety has information on their website that is particularly focused on I.V. push medications and has developing resources.

Certainly a variety of drug references, Nurses Bedside Drug Guides will have some information on administration. But I always encourage pharmacies if there is important specific information about medication administration, to put that right on the Medication Administration Record, so the nurse doesn't have to look it up. And then you know everyone always has the same information.

Finally, each pharmacy should develop some structure around medications and what type of devices are appropriate for administration of the various medications that they're using, and then be aware of the device that's in place. So this takes it to the bedside level. Someone has to evaluate, even down to the level of the drug concentration being appropriate for that site, especially as devices change around.

And so again, incorporating information on the electronic medical record about what devices are in place, and making sure it's visible to the pharmacist is another important resource.

There are other organizations, the Association for Vascular Access, has resources. And then there's a new information source coming from BD, an Infusate Companion, for things to consider when giving various individual medications and what's been published about

their site of administration and any risks associated with giving that medication perhaps through a peripheral I.V. versus a central line. So more information will be coming on that in the future.

Dr. Turck:
Before we close, Dr. Jacobi, is there anything you would like to re-emphasize or add on this subject of risk mitigation to leave with our audience today?

Dr. Jacobi:
So I think the biggest thing is just think about the patient and the long-term consequences of every little thing that we do regarding vascular access. And, admittedly, a peripheral I.V. that may be in place for a few hours for a procedure might not seem like a big deal to us, but if a medication infiltrates and causes injury, it's a big deal to the patient. And anything that we're going to place for longer periods of time, and is likely to impact that patient's long-term vascular health is very important. There's a reason that patients have such concerns about repeated intravenous access because it can be traumatic and painful and very stressful for them. And so I think that's probably the most important message is to consider the fact that the supply of blood vessels is not infinite in patients likely to need repeated intravenous access should be absolutely identified as such. And whether the terminology is difficult I.V. access or how you want to categorize them, but be very aware that you may create challenges for yourself or other clinicians down the road and certainly for the patient.

Dr. Turck:
Well, with those thoughts in mind, I want to thank my guest, Dr. Judith Jacobi, for joining me to share her expertise on vascular access care and ways to minimize the risk of complications in our patients. Dr. Jacobi, it was great having you on the program.

Dr. Jacobi:
It's been my pleasure to have this very important conversation and hope that our clinicians at the bedside will have the resources they need to improve the care of their patients. Thank you.

Announcer:
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