

An accessory that reduces ergonomic burden on interventional cardiologists during left-sided vascular access

Unmet Need

A recent study showed that over 40% of interventional cardiologists report spine problems. Currently, catheterization labs are set up so that an operator performing the catheterization is positioned on the right side of a patient. A challenge arises when a procedure must be performed on the left or opposite side of the patient. In all cases of left-sided access sites (radial, femoral, tibial, pedal), the operator must bend over for the duration of the procedure, which can be up to a several hours for complex procedures. This over-extended position can lead to a variety of ergonomic issues, such as back, neck, and shoulder pain which can deter physicians from accessing the left side. However, the American Heart Association recommends a 'Radial-first' approach because of lesser associated bleeding, improved patient comfort and lower costs. Within radial meaning, left radial provides a more direct path to the ascending aorta, meaning lesser catheter manipulation and lower fluoroscopy time. Moreover, in addition to discomfort, if an operator needs to bend over to access the left side of the patient, they may be bypassing the leaded shield, thus exposing their hands, upper thorax and sometimes head to radiation. Research demonstrates that early career interventionalists are 50% more exposed to radiation than experienced operators and suggests that switching from right radial to left reduces radiation exposure by 23%. Hence, there is an ongoing need for improved methods and systems for catheterizations and other hemostatic device procedures that require reaching across the patient's body.

Technology

Inventors at Duke have reported an accessory that extends the functional length of existing hemostatic device by 4-10 inches. To use this device, an interventional cardiologist would first obtain vascular access and then attach the device directly to the vascular sheath prior to passing catheters. The inventors have created a prototype, connected it to a variety of commercially available radial sheaths and evaluated leakage by injecting liquid through the device with a syringe.



Duke File (IDF)

T-007255

Inventor(s)

- Geddie, Charles
- Carroll, Kathleen "Katie"
- Marquis-Gravel, Guillaume
- Patel, Manesh
- Shrikant, Shweta

Links

- [A project from Duke FastTrack](#)

College

School of Medicine (SOM)

For more information please contact

Krishnan, Shweta
919-681-7541
shweta.krishnan@duke.edu

Pressure inside the system was held for at least a minute, and no leakage was observed for any system.

Other Applications

This device could increase the versatility of Extracorporeal Membrane Oxygenation (ECMO) circuits, negating the need to break apart the circuit for ad hoc tube adjustments.

Advantages

- Could reduce ergonomic burden and additional radiation exposure to interventional cardiologists when accessing left side of patient
- Prototype has been successfully tested and demonstrated to operate leak-free
- Has already been integrated with existing commercially available radial sheaths, including Merit Prelude, Oscor Adelante Radial, Teleflex Arrow introducer sheaths and the Terumo Pinnacle hemostasis valve
- Unlike similar devices, offers tactile feedback for a successful connection with a snap-fit, graduated markings for catheter selection, and an easy assembly and disassembly