The Impact of Implementing Bleeding Avoidance Strategy on Reducing the Risk of Femoral Access Site Hematoma

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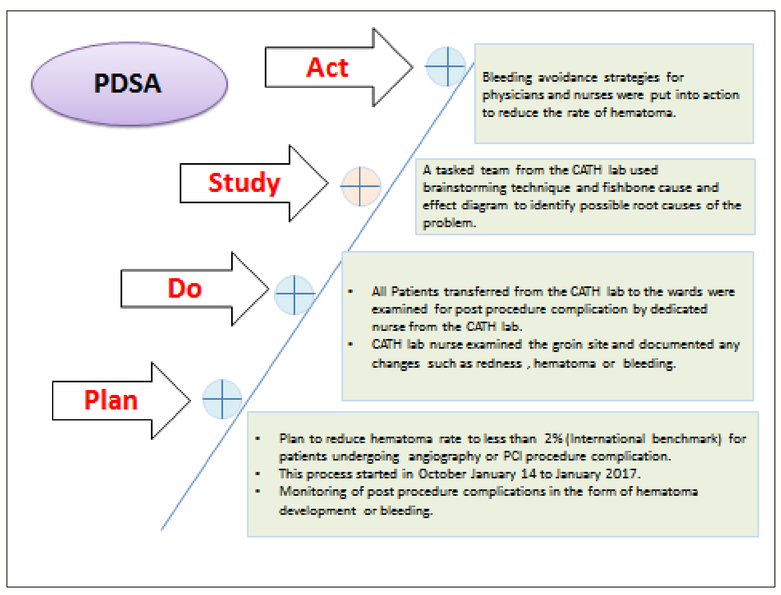
Aim

- To implement bleeding avoidance strategies to minimize vascular complication, especially hematoma formation, the most common access site complication.

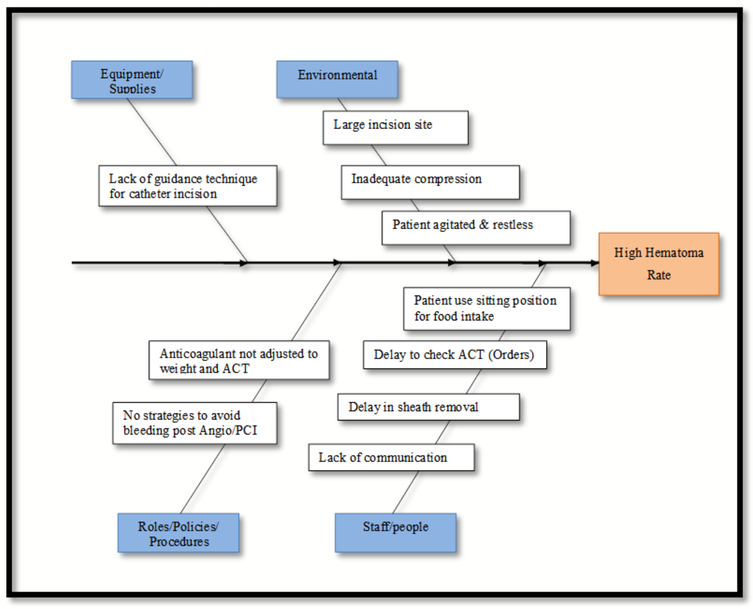
Overview

- More than 3,500 diagnostic and interventional cardiac catheterizations are performed each year in the Heart Hospital.
- Although cardiac catheterization is considered the gold standard for the diagnosis, evaluation, and treatment of cardiac diseases, this invasive procedure is not free of complications.
- Femoral site access compared with radial site access increased the risk of vascular complication such as bleeding and hematoma, the most common access site complication
- In 2014 femoral site access hematoma rate in Cardiac Catheterization (CATH) LAB at the heart hospital was increasing continuously from 1.37% in January to 5.6% in December. The international acceptable target for hematoma rate is not to exceed 2%. This rapid increase was an alarming sign for the CATH lab department to examine the problem and put an action plan to reduce the risk femoral site access hematoma rate.

Strategy for Change



Root Cause Analysis



Actions Implemented

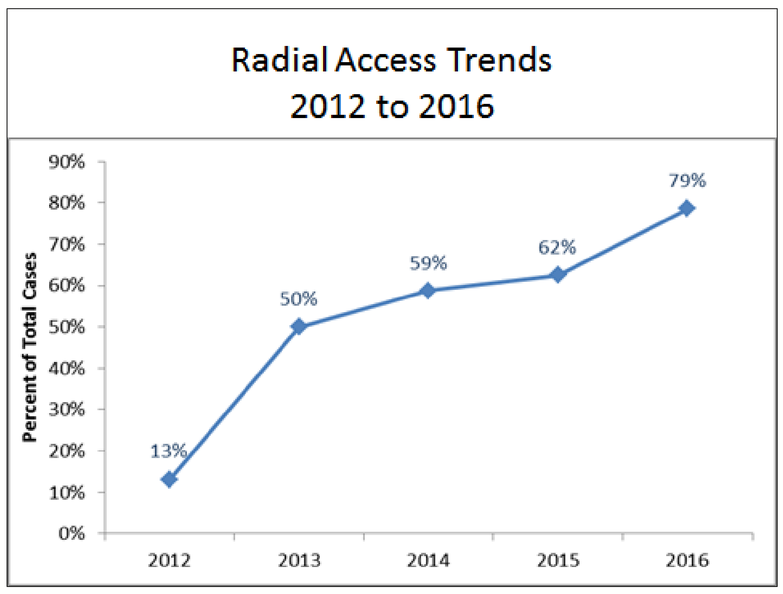
Recommendations involved interventional cardiologists:

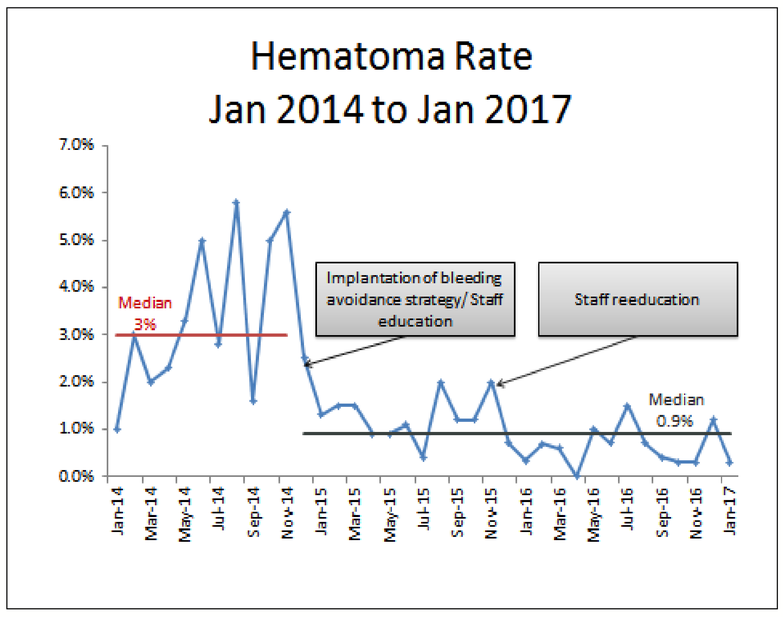
- In all patients undergoing coronary angiogram/PCI, the **radial access** is the preferred route
- If radial access is not suitable , consider fluoroscopy or ultrasound guided femoral access
- Consider smaller sheath size
- Apply bleeding avoidance strategy score chart,
- Apply ACT to guide heparin dosing and adjust heparin according to patient weight
- Arterial femoral sheath should be removed ASAP after PCI, ACT should be checked hourly post PCI, sheath to be removed when ACT < 170.
- Avoid the use of excess anticoagulant.

Recommendations involved nurses:

- Continuous monitoring of ACT according to patient situation and physician order,
- Monitor signs and symptoms of hematoma formation at the accessed site,
- Develop protocol for continuity of care of catheterization patients,
- Avoid delay in sheath removal - given the patient's characteristics and the circumstances surrounding the procedure,
- Apply appropriate compression technique following sheath removal,
- Provide patient education that includes explanation of the procedure, common complications, and methods to prevent bleeding.

Results





- Following implantation of evidence based bleeding avoidance strategy that involve all caregivers, Hematoma rate dropped from a median of 3% to less than 1% which is less than the international bench mark of 2%.
- Staff orientation and training was carried out to in November 2015 to reinforce the improvement changes. This resulted in noticeable decrease of hematoma rate that reached zero in April 2016.
- Continuous improvement was performed on a daily basis by the CATH LAB team to sustain low hematoma rate, bleeding and other access site complications.

Conclusion

Improving clinical practice in the CATH lab by using the most available evidence and performing bleeding avoidance strategies to reduce the risk of vascular site complication is one the important improvement initiative that supports patient safety and provides the best quality of care for patients in the Heart Hospital.

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