FEMORAL COMPRESSION SYSTEM (FEMOSTOP ™)/INTERNAL VASCULAR CLOSURE DEVICE– ICU, CATH LAB & RECOVERY, PROGRESSIVE CARE UNIT

PURPOSE: To outline nursing management of the patient receiving a femoral compression system (FemoStop™) or internal vascular closure device.

SUPPORTIVE DATA: The Femoral Compression System (FemoStop™) is indicated for use in the compression of the femoral artery or vein after vessel cannulation. This is generally used after removal of a central line, cardiac catheter sheath or intra-aortic balloon catheter (IABC) and may cause complications such as:

- tissue necrosis
- femoral artery and/or vein thrombosis
- a pseudoaneurysm
- blistering of the skin/ skin abrasion
- embolization
- loss of pedal pulses
- compression injury to nerves (with subsequent sensory and motor deficits)

If arterial/venous hemostasis is not achieved, significant hemorrhage may occur which could result in patient injury or death.

The provider places the FemoStop™ snugly around the patient's hips, removes the catheter and applies pneumatic pressure with FemoStop™ device. The FemoStop™ will be managed according to manufacturer's recommendation and removed after 6 hours or as ordered by the provider.

The internal vascular closure device (i.e., Starclose, Perclose, Angioseal, Mynx) is utilized for the percutaneous closure of the femoral access site after diagnostic or interventional catheterization. This closure system is usually placed by the provider in the Cath lab but can be done at bedside for Intra-Aortic Balloon Pump or arterial sheath removal. The closure device generally dissolves within 90 days, offering rapid hemostasis and quicker recovery.

ASSESSMENT:

1. Assess and document the following immediately upon placement and then every 15 minutes for the first hour, every 30 minutes for second hour, then every hour until discontinued:
   - Level of consciousness (LOC)
   - Vital Signs
   - Femoral and distal lower extremity perfusion including:
     - Pulses
     - Skin color, temperature
     - Nailbed color and capillary refill
   - Groin and catheter site for presence/absence of bleeding/hematoma
   - Keep the groin uncovered

2. Assess for contributing risk factors to bleeding:
   - Obesity
   - Anxiety
   - Anticoagulation

3. Assess for pain/discomfort a minimum of every hour.
   - Offer comfort measures
   - Medicate as ordered PRN

ANTICOAGULATION:

4. Administer anticoagulants as ordered.
5. Check coagulation laboratory tests as drawn:
   - Activated partial thromboplastin time (Aptt)

- Completed blood count (CBC) with platelet count
- International normalized ratio (INR)

SAFETY:

6. Maintain bed rest for 6 hours after catheter removal or as ordered.
7. Maintain head of bed no higher than 30 degrees.
8. Keep affected extremity straight and hip in alignment for 6 hours.

REMOVAL: FEMOSTOP™

9. Apply pressure dressing using a gauze roll and tape for a period of 10 hours followed by hemostatic dressing from the manufacturer.
10. Reassess for complications on the *following morning* after the dressing has been removed.

REPORTABLE CONDITION:

11. Notify provider immediately for:
    - Rapid drop in blood pressure or downward trend
    - Altered LOC
    - Decreased perfusion to affected leg
    - Change/loss of pedal pulse
    - Significant change in hemoglobin /coagulation values
12. Notify provider immediately for bleeding or hematoma and do the following:
    - Reapply or reinforce pressure dressing
    - Draw CBC, INR, Aptt as ordered
    - Check availability of blood/blood products and transfuse as ordered

PATIENT/PATIENT CAREGIVER EDUCATION:

13. Instruct on the following:
    - Purpose of FemoStop™ /Internal Vascular Closure Device
    - Importance of bed rest and extremity immobilization
    - Need to report discomfort/pain/bleeding

ADDITIONAL STANDARDS:

14. Refer to following as indicated:
    - Anticoagulant Therapy
    - Pain Management
    - Immobility
    - Arterial Line -ICU
    - Blood and Blood Products

DOCUMENTATION:

15. Document in accordance with documentation standards in iView.

Initial date approved: 7/10	Reviewed and approved by: Professional Practice Committee Nurse Executive Committee Attending Staff Association Executive Committee	Revision Date: 8/15, 11/18, 02/23

References:

AACN Procedure Manual for High Acuity, Progressive, and Critical Care. 7th Edition. Debra L. Wiegand. Elsevier. (2017)

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https://evtoday.com/pdfs/et0510_closuredevice_chart.pdf

Anton Sidawy. Endovascular Therapeutic Technique. Vascular Closure Devices. (2019).
Vascular Closure Device; ScienceDirect (2022)
https://www.sciencedirect.com/topics/nursing-and-health-professions/vascular-closure-device

Femostop TM Gold (Femoral Compression System)
https://www.cardiovascular.abbott/us/en/hcp/products/peripheral-intervention/femostop-gold.html

Guide to Vascular Closure Perclose (ProGlide) Suture (2020)
About Electrophysiology Study of the Heart (islandhealth.ca)
https://www.islandhealth.ca/sites/default/files/2020-01/vascular-closure-perclose-guide.pdf

The Mynx Ace ® Vascular Closure Device- Endovascular today (2022)
Website (evtoday.com)
https://evtoday.com/articles/2015-feb/the-mynx-ace-vascular-closure-device