

TR BAND RADIAL COMPRESSION DEVICE (TR BAND™) – ICU/Progressive Care Unit/Cath Lab & Recovery Room

PURPOSE: To outline nursing management of the patient receiving a TR Band™ radial compression device.

SUPPORTIVE DATA: The TR Band radial compression device (TR Band™) is indicated for compression of the radial artery after vessel cannulation. This is generally used after removal of arterial sheath and may cause complications such as tissue necrosis, radial artery thrombosis, pseudoaneurysm, blistering of the skin/ skin abrasion, embolization, loss of radial pulse, and compression injury to nerves with subsequent sensory and motor deficits. If arterial hemostasis is not achieved, significant bleeding (hemorrhage) may occur which could result in patient injury or death.

Arterial sheath removal and TR Band™ placement (in the Cath Lab):

The physician administers spasmolytics intra-arterially via the radial sheath, applies the TR Band™ snugly around the patient's wrist with sheath in-place, inflates the TR Band™ compression balloon via the TR Band™ Inflator syringe with 15mL of air (maximum is 18mL), and slowly pulls out the radial artery sheath. Once sheath is removed, the physician slowly withdraws 1mL of air at a time with the syringe, while observing for blood leak from puncture site until radial hemostasis is achieved. If bleeding is observed, physician injects more air (not exceeding a total of 18mL) until bleeding stops. A sterile swab or gauze is used to clean any blood that has accumulated beneath the device.

TR Band™ removal (in the ICU, Progressive Care Unit or Recovery Room):

The TR Band™ radial compression device will be managed according to manufacturer's recommendation.

The time to initial deflation is dependent upon the type of procedure:

- 1-1/2 to 2 hrs for **diagnostic cases** and
- 2 to 3 hrs for **interventional cases**

For outpatient diagnostic cases, patients may be discharged 30 minutes after TR band removal.

ASSESSMENT:

1. Assess the following:

- Level of consciousness (LOC)
- Vital Signs
- Oximetry waveform or radial and hand perfusion which includes:
 - Pulses
 - Skin color, temperature
 - Nailbed color and capillary refill
 - Presence/absence of numbness or tingling
- Assess the above at the following frequency:
 - Upon TR Band™ placement and then every 15 minutes for the first hour, every 30 Minutes for the second hour, and every hour until removed for all cases
 - Upon TR Band™ removal and then every 15 minutes for the first hour, every 30 minutes for the second hour, and every hour x2 *for interventional cases*
 - Upon TR Band™ removal and then every 15 minutes for the first hour until discharge *for diagnostic cases*
- Catheter site for presence/absence of bleeding / hematoma
- Presence of blood on surrounding skin (keep the surrounding skin clean)

2. Assess for risk factors of bleeding:

- Extreme arm flexion and extension of affected arm
- Restlessness

- Anticoagulation

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

ANTICOAGULATION:

4. Administer anticoagulants as ordered.
5. Assess coagulation laboratory test results as drawn:
 - Activated partial thromboplastin time (aPTT)
 - Complete blood count with platelet count
 - Prothrombin Time/ International normalized ratio (PT/INR)

TR BAND™
REMOVAL:

6. Remove the TR band with the following steps:
 - Refer to recorded amount of air remaining in the TR Band™ compression balloon
 - While observing for bleeding, use TR Band™ syringe to deflate 3 mL of air every 10 minutes until all remaining air has been removed
 - If bleeding occurs when 3 mL of air is removed, re-inflate with 3 mL of air. Wait 30 minutes then restart releasing 3 mL of air at a time every 10 minutes until all remaining air has been removed
 - Withdraw remaining air. If there is no bleeding, remove TR Band™ and apply a sterile gauze dressing with Elastoplast. This should **not** encircle the entire wrist.
 - Reassess perfusion in the hand.
Note: The dressing should remain in place until the next day. Excessive flexion/extension of the wrist should be avoided for at least 24 hours.

SAFETY:

7. Transport deflater syringe with patient from Cath Lab.
8. Limit movement and keep affected arm straight for 6 hours post procedure.
9. Do not apply blood pressure cuff to affected arm for 24 hours.
10. Discontinue bedrest and allow bathroom privileges once fully awake.
11. Reassess for complications on the following morning after the dressing has been removed (done by cath lab nurse).

COLLABORATION:

12. Notify physician immediately for:
 - Rapid drop in blood pressure or downward trend
 - Altered level of consciousness
 - Decreased perfusion to affected arm and compromised circulation to the hand
 - Change/loss of radial pulse
 - Significant change in hemoglobin /coagulation values
 - Hematoma
13. Notify physician and do the following for bleeding/ uncontrolled bleeding after TR band has been removed:
 - Elevate the arm and apply manual compression
 - Reapply or enforce pressure dressing
 - Check availability of blood/blood products and transfuse as ordered

PATIENT/FAMILY
TEACHING:

14. Instruct on the following:
 - Purpose of TR Band™
 - Importance of immobilization of affected extremity
 - Need to report discomfort/pain

DISCHARGE
INSTRUCTIONS:

15. Instruct patient
 - Not to do any lifting using the affected arm for 24 hrs.
 - To avoid extreme flexion and extension of the affected wrist.
 - To apply manual pressure, elevate arm, and call physician immediately if bleeding or hematoma occurs at site.
 - To remove dressing the next day and keep site clean and dry.
 - To report any symptoms (other than slight tenderness or tingling of fingers and hand which may occur for up to 3 days)

ADDITIONAL
STANDARDS:

16. Refer to following as indicated:
 - Anticoagulant Therapy
 - Arterial Line - ICU
 - Blood and Blood Products

- Immobility
- Pain Management
- Post-Cardiac Catheterization/PTI – ICU, PCU, Cath Lab and Recovery Room

- DOCUMENTATION:
17. Document in accordance with documentation standards.
 18. Record time band is removed.
 19. Record the following in iView on Systems Assessment Navigator Band
 - LOC
 - Radial pulses
 - Presence /absence of bleeding/hematoma,
 - Skin color/temperature

Initial date approved: 3/15	Reviewed and approved by: Professional Practice Committee Critical Care Committee Nurse Executive Committee Attending Staff Association Executive Committee	Revision Date: 10/18
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