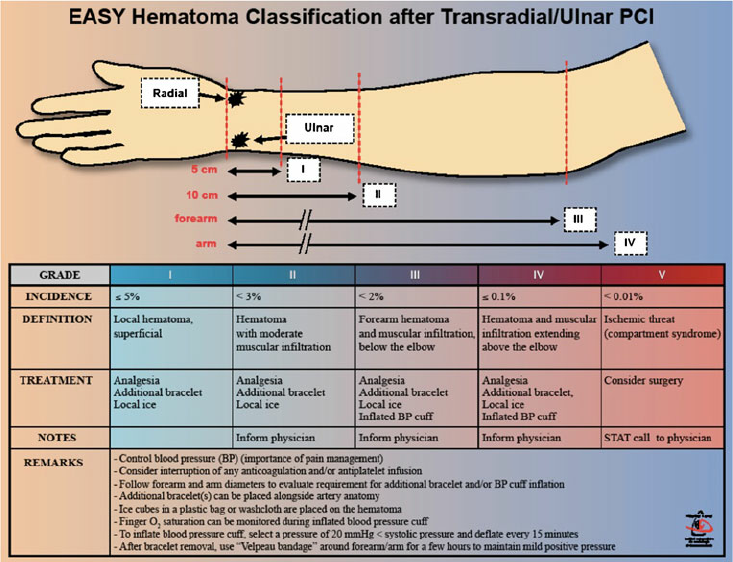
**Management of Radial/Ulnar Access Bleeding & Hematoma**



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**Radial/Ulnar Hematoma Protocol**

**1**.

**STOP THE BLEEDING!**

* If bleeding is noted while TR band is in place, reintroduce air until hemostasis is achieved.
* Leave TR band in place for an additional 30 minutes before attempting to remove air again.

**Continued bleeding & Hematoma formation**

**MONITOR**

**FOR**

**REBLEED**

***Hematoma proximal to the TR band?*** THEN:

* Reinflate/redeploy TR band to a max of 18cc’s of total air
* If hematoma continues to grow, do not remove TR band & apply manual pressure to the arterial site proximal to the TR band. This should be considered an emergency.

**2**

**STABLE**

* Apply manual pressure cuff on upper arm (please see photo as a guide)
* Inflate to 20mm Hg above patient’s SBP for 10 minutes. Apply a clamp to BP cuff tubing to maintain desired pressure.
* Apply an additional Large TR band proximal to the original TR band and inflate with 18cc’s of air.
* Place PulseOx on the finger of affected hand to check perfusion
* Expect no pulse oximetry signal when BP cuff is inflated to 20mm Hg above the patient’s systolic BP. This means we are effectively controlling the bleeding.
* Firmly apply coban from proximal TR band to the elbow
* Monitor for signs of compartment syndrome (consider ortho/vascular surgery consult if appropriate).

**3**

**4**

**Continued bleeding**

* After 10 minutes, deflate the BP cuff and remove the coban.
* Assess hematoma size
* Reapply coban immediately
* Monitor extremity every 10 minutes for any changes
* After one hour of hemostasis remove the coban
* Start deflating both TR bands at the same time as per protocol.

**Specific anti-platelet and anti-coagulant issues:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Agent** | **Mechanism** | **Duration** | **Reversal** |
| **Unfractionated heparin (UFH)** | Inactivates thrombin; prevents conversion of fibrinogen to fibrin | 1-2 hours | Protamine\*: Max dose 50 mg IV.  Immediate=1 mg protamine/100 unit of UFH  1 hour after UFH =0.5 mg protamine/100 unit of UFH  2 hour after UFH=0.25 mg protamine/100 unit of UFH |
| **Enoxaparin**  **(Lovenox)** | Factor Xa inhibition | 12 hours; longer if low GFR | Protamine\*: 1 mg IV per each mg of enoxaparin (results in 60-75% reversal) |
| **Bivalirudin**  **(Angiomax)** | Direct thrombin inhibition | 2 hours; longer if low GFR | None |
| **Eptifibitide#**  **(Integrilin)** | IIb/IIIa receptor blocker | 4 hours | None |
| **Abciximab#** | Antibody-mediated IIb/IIIa receptor blockade | 0.5 hours,  Mild effect for 7 days | None, but platelet transfusion can help reverse effects. |
| **Tirofiban#**  **(Aggrostat)** | IIb/IIIa receptor blocker | 4 hours | None |

\*May rarely cause severe hypersensitivity reaction and hemodynamic collapse. Do not overdose since excess protamine can exacerbate bleeding.

#May cause severe acute thrombocytopenia (especially abciximab)

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| --- | --- |
| **Consideration** | **Comment** |
| **Urgent Arterial Duplex** | Uncontrolled bleeding, presence of pulsatile mass, loss of pulse with new sensory/motor findings of the affected extremity. |