



## GUIDELINES FOR THE MANAGEMENT OF PROSTHETIC HEART VALVES

**ANTITHROMBOTIC TREATMENT RECOMMENDATIONS:**

- Unfractionated heparin (conservative protocol) or Lovenox (1 mg/kg sq bid) should be started as soon as the risk of increased surgical bleeding is reduced.
- Heparin or Lovenox can be stopped after 5 days of combined therapy with Coumadin and INR therapeutic for 2 consecutive days.
- Use Coumadin™ brand name only!
- For mechanical valves in the mitral position, add enteric coated ASA 81 mg to Coumadin, unless contraindicated.
- After discharge, patient should have INR checked within 3 days and weekly until stable INR.

INDICATION	INR GOAL	DURATION
Mechanical valve (AVR or MVR)**	target 3.0 (range 2.5-3.5)	lifetime
Bioprosthetic valve (AVR or MVR) & no RF*	target 3.0 (range 2.5-3.5)	3 months, then ASA
Bioprosthetic AVR with RF*	target 2.5 (range 2.0-3.0)	lifetime
Bioprosthetic MVR with RF*	target 3.0 (range 2.5-3.5)	lifetime

\*RF = risk factors (atrial fibrillation, LV dysfunction, previous thromboembolism, hypercoaguable condition).

\*\*Add enteric ASA 81 mg to Coumadin for mechanical MVR unless contraindicated

### COUMADIN THERAPY INITIATION PROTOCOL

Day	INR	Dosage
1		5 mg
2	< 1.5	5 mg
	1.5-1.9	2.5 mg
	2.0-2.5	1-2.5 mg
	> 2.5	0
3	< 1.5	5-10 mg
	1.5-1.9	2.5-5 mg
	2.0-2.5	0-2.5 mg
	2.5-3.0	0-2.5 mg
	> 3.0	0

Day	INR	Dosage
4	< 1.5	10 mg
	1.5-1.9	5-7.5 mg
	2.0-3.0	0-5 mg
	> 3.0	0
5+	< 1.5	10-12.5 mg
	1.5-1.9	7.5-10 mg
	2.0-3.0	0-5 mg
	> 3.0	0

#### Management of Antithrombotic Therapy with Cardiac Catheterization/Intervention

**Elective cardiac catheterization & minimal thromboembolism risk:**

1. Stop Coumadin ~ 72 hours before the procedure so that the INR is # 1.5.
2. Restart Coumadin as soon as the procedure is complete.

**Elective cardiac catheterization & S1 risk factor for thromboembolism:**

1. Stop Coumadin ~ 72 hours before the procedure so that the INR is # 1.5.
2. Start unfractionated heparin or Lovenox (1 mg/kg sq bid) when INR < 2.
3. After an overlap of 3-5 days, heparin or Lovenox may be discontinued when the desired INR is achieved.

**Emergent or semi-urgent cardiac catheterization:**

1. Cardiac catheterization can be performed.
2. Consider FFP transfusions.

#### Management of Excessive Anticoagulation With or Without Bleeding

INR	Therapeutic Intervention
Above therapeutic but < 5	Hold dose and restart at same or lower dose when INR is therapeutic.
5 – 9	Hold dose and restart at lower dose when INR therapeutic; consider vitamin K (1.25-2.5 mg) po if at increased risk of bleeding.
> 9	Hold dose and give vitamin K (2.5 – 5 mg) po. Monitor INR more frequently and repeat vitamin K if necessary.
> 20 or if serious bleeding regardless of INR	Hold dose and give vitamin K (10 mg) IV and FFP depending on urgency of situation.

#### Management of Antithrombotic Therapy with Noncardiac Surgery/Dental Procedures

1. Heparin should be reserved for those at high risk:
  - recent thromboembolism (within 1 year)
  - demonstrated thrombotic problems off therapy
  - Björk-Shiley valve
  - ∃ 3 risk factors (consider > 1 if mechanical valve in the mitral position) including; atrial fibrillation, previous thromboembolism, hypercoaguable condition, mechanical prosthesis, LV dysfunction.
2. Most dental procedures can be managed without interrupting anticoagulation.

#### Endocarditis Prophylaxis Recommendations

**Dental, Oral, Respiratory Tract, or Esophageal Procedures:**

Prophylactic cleaning, dental extractions, periodontal procedures, dental implant placement, root canal, subgingival placement of antibiotic fibers or strips, initial placement of orthodontic bands, intraligamentary local anesthetic injections, tonsillectomy and/or adenoidectomy, surgical operations involving respiratory mucosa, or bronchoscopy with a rigid bronchoscope.

1. Amoxicillin 2.0 g 1 hr before procedure
2. If allergic to penicillin: clindamycin 600 mg 1 hr before, azithromycin or clarithromycin 500 mg 1 hr before, or cephalexin 2.0 g 1 hr before procedure.

**Gastrointestinal and Genitourinary Tract Procedures:**

Sclerotherapy for esophageal varices, esophageal stricture dilation, endoscopic retrograde cholangiography, biliary tract surgery, surgical operations involving intestinal mucosa, prostatic surgery, cystoscopy, urethral dilation.

1. Ampicillin 2.0 g IM/IV plus gentamicin 1.5 mg/kg (not to exceed 120 mg) within 30 minutes of starting; 6 hr later ampicillin 1 g IM/IV or amoxicillin 1 g orally.
2. If allergic to penicillin: vancomycin 1 g lv over 1-2 hr plus gentamicin 1.5 mg/kg (not to exceed 120 mg) within 30 minutes of starting the procedure.

**Questions, Assistance, or Referrals:**