Procedure:

CABG/valve

Indication:

CAD, valvular disease

Description:

CABG: Sternotomy, placed on cardiopulmonary bypass, and saphenous vein is used to bypass occluded vessels. Chest tubes and pacer wires are put in place. Valve: Sternotomy, placed on cardiopulmonary bypass, diseased valve is either repaired or replaced with a mechanical or bioprosthetic valve, and chest tubes/pacer wires are put in place.

Post-op Implications:

Complications:

Bleeding: Observe chest tube output frequently; if >200ml/hr, Immediately alert surgeon. Have extra blood admin and product tubing at bedside. Have bear hugger on patient: cold blood doesn't clot.
Cardiac Tamponade: Narrowing pulse pressures and decreased CO/CI, decreased UOP. Triad: muffled heart sounds, hypotension, and JVD. Give fluids and inotropes until intervention.
Decreased CO/CI: Analyze PA numbers/BP, pacer, intrinsic rhythm, CVP, UOP, chest tube output, fluids/albumin/blood, pressors, inotropes, etcâ€¦ Make a determination to increase CO/CI.
Pulmonary HTN: Flolan (protect from light)
Systolic Anterior Motion of the mitral valve (SAM) after MVR: Avoid inotropes, aggressive diuresis, and tachycardia. Give Beta blockers, and maintain MAP 80-90.
Hyperglycemia: Insulin drip algorithm for 48hrs per protocol
RHF: echo is main diagnostic tool. Inotropes and reduced SVR. Inhaled pulmonary vasodilators
MI- troponins usually slightly elevated after heart surgery. Requires TEE and possibly IABP until intervention.
Afib: Amiodarone load during operation, then 24hr drip (1mg/min for 6hrs followed by 0.5mg/min for 18hrs). Rate control, cardioversion and anticoagulation.
Sternal wound infection and dehiscence: sternal precautions, mupirocin, and chlorehex baths.
Thoracic Aortic surgery (AAA only): lumbar drain to augment CSF pressures, also keep MAP >80, these are to prevent paralysis from spinal hypoperfusion.

Meds:

Comes out of the OR sedated on propofol. Insulin drip for 48hrs. Amiodarone load during operation, then 24hr drip (1mg/min for 6hrs followed by 0.5mg/min for 18hrs). Inotropes and vasoactive possibly for 24-36hrs. IV AbX post-op. 4mg magnesium immediately post-op. Other electrolytes per BMP (Mg >2, K>4, Po4>4, Ion Ca >2.2). MIVF/driver typically 100ml/hr. Keep all pressors and inotropes on central line through OR manifold. 3 albumin 250ml vials if needed (standing order). Heparin SQ. Mechanical valves require life-long anticoagulation.

Principles:

Maintain MAP 60-90 (too high can cause bleeding). Strict sternal precautions. Have 2 RNs at bedside for first couple hours. â€œFast-trackâ€ is to extubate within 2-4hrs of arrival to SICU.

Care Plan:

PA cath care (if applicable). A-line care. Sternal Precautions. Aggressive pulm hygiene (IS, OOB, C&DB). Frequent skin care, turning. VAP prevention after initial 24hrs. Pacer assessment/care. Daily CXR/weights/labs/EKG.

Course of Care:

"Fast-track": extubate within 2-4hrs, wean propofol, wean pressers as tolerated. Perform 6hrs post-op CBC and BMP. POD#1 OOB to chair, consider home Rx and lasix. Evaluate need for A-line, CVC, PA cath, and chest tubes. Daily EKG, weight, labs, and CXR.

Room Setup:

Extra blood tubing, albumin bottle and tubing primed, blood product tubing and filters. SCD, bear hugger and full body blanket, 4 suction set-up: yankaur/oral, NG/OG, 2X chest tubes w/ extensions. IV fluid manifold and 4 primed pumps/tubing. A-line set-up. Possible CVP or PA cath set-up. Vent set-up (RT). O2 supplies for post-extubation.
Anticipated Guidelines for Routine CT surgery Patients/Post-op Pathway

POD#	Goals	Pearls/Caveats
POD#0	Extubation & consider weaning pressors and inotropes as tolerated. Post-op labs/EKG/CXR/electrolyte replacement. 4gm Mg, IV AbX.	Goal to extubate within 2 hours.
POD#1	Check platelet count If plt count <50K or has dropped by >50% from baseline. Baseline is highest post-op count, consider HIT antibody	Median 3 days from baseline=highest post op count. If suspect HIT, continue to follow pt count. May need anticoagulation
	Check labs	Current trigger Hct <21 (patient dependent), please discuss transfusions w/ CT surgery team prior to ordering Check Cr If >1.4, avoid ACEI or ARBs
	Consider weaning pressors & inotropes as tolerated if not done	Start afterload reduction before weaning off milrinone
	Consider D/C swan if off inotropes & pressors and hemodynamically stable	Can ambulate once PA cath is D/C'd
	Assess for starting beta blockade if off pressors and HR/BP permit, Metoprolol 6.25-25mg PO BID	Criteria: no evidence of bradycardia, did not require pacing overnight, intrinsic HR >70 & SABP >100mm Hg, off pressors.
	Consider switching IV amiodarone to 400mg PO BID for 7 additional days	Criteria: no evidence of bradycardia, did not require pacing overnight; IV + PO amiodarone should be for a total of 8 days.
	If CAD, consider resuming pre-op statin	No more than 20mg daily if also on amiodarone
	Per order set; Aspirin 325mg PO Qday begins	If on Coumadin, start Aspririn 81mg PO Qday instead
	DVT prophylaxis (SC heparin) for patients who are at risk for DVT (immobile, morbidly obese, critically ill, ARF, etc.)	Verify that they did not have a fall in plt count post operatively or + HIT antibody. Monitor plt counts on these patients
	Consider diuresis 20mg IV furosemide BID	Furosemide is not appropriate for increased Cr. And decreased UOP due to pre-renal causes
	Assess for restarting outpatient	BB? ACE-I?Â Statins?Â ASA?

	medications & for starting new outpatient medications:	
POD#2	Patient should be eating and ambulating	
	Assess for D/C cordis, A-line, foley	Patients generally don't need central access after POD#2
	Consider removal of pleural & mediastinal chest tubes provided <10cc/hour each for 3 consecutive hours AND patient has recently stood & â€œdumpedâ€ AND CXR w/o significant effusion (CXR s/p removal if history of air leak; check breath sounds in 1 hour after removal of any chest tube)	Leave chest tube purse string suture tied but open to air-leave a tail for later. Remove from suction, clamp tube, twist slightly and pull gently. Remove 1 at a time. Ask RN to pre-medicate the patient-reportedly the most painful part of cardiac surgery for patients.
	Warfarin, consider starting on patients with mechanical and prosthetic valves per guidelines (warfarin once at 1700), order daily INR/PT.	For patients on amiodarone, start warfarin at 50% of normal dose
	Change insulin drip to sliding scale SQ insulin aspart	Post-op CABG patients should be controlled using only an insulin drip for 48 hours post-operatively
	Pt. may be ready to transfer to telemetry. Tele orders MUST include: Daily weights, CBC, Chem 10, PT/INR X days. QAC & HS CS, guidelines re: activity, and external pacer if needed.	Tele orders should not include any ICU specific drugs or orders (e.g. the pacer set or pressors, etc.) Restart any outpatient medications as appropriate. Electrolytes need to be ordered daily by MD on floors per lab results.
POD#3	Ideally moving to telemetry	
	Ambulating. BM today	
	Clopidogrel â€“ before starting for previous coronary stents, check with attending.	
	Evaluate for home medications	BB? ACE-I?Â Statins?Â ASA?
POD#4	Ideally moving to the floor	Report to CT surgery
	Continue to evaluate for home medications	BB? ACE-I?Â Statins?Â ASA?
	Remove pacer wires if appropriate before 0900 if discharging	Ensure INR is <4.0 Call team for "stuck wires", do not clip without discussion

	Consider PA & Lateral CXR this morning	Pt needs a baseline post operative PA & lateral prior to D/C
	Aggressive bowel regimen if no BM	
POD#5	Floor status	
	Continue to evaluate for home medications, D/C IV Rx if able	BB? ACE-I?Â Statins?Â ASA?
	Remove occlusive dressings for SVG sites	Chest tube purse string suture removed at post op visit
	This is not a "TO DO" checklist and each patientâ€™s condition and medical history ultimately guide the daily plan or care. Management should be collaborative between the SICU team and the CT surgery team. Revised 11/2010. Cynthia Natiello	