Atrial Fibrillation (AF) and Atrial Flutter Inpatient Management - Adult

Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.*

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PCI = percutaneous coronary intervention

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PATIENT PRESENTATION

Suspected new onset AF/atrial flutter

ASSESSMENT

Initiate a Goal Concordant Care (GCC) conversation[1] with the patient, or if clinically indicated, with the Patient Representative, and the Primary Oncologist/Primary Team/ Attending Physician. The Advance Care Planning (ACP) note should be used to document GCC discussion.

Is the patient hemodynamically stable?

Yes

- Perform EKG to confirm AF/atrial flutter
- Initiate transfer to cardiac monitoring bed[2,3]
- Assessment and prompt treatment of underlying medical condition and/or correction of modifiable risk factors[4]

Time of onset < 48 hours?

Yes → See Page 3

No → See Page 4

No

- Call MERIT
- Place patient on cardiac monitoring

Initiate emergent electrical cardioversion (synchronized biphasic at 100-200 joules), per advanced cardiac life support (ACLS)

Immediately initiate LMWH or IV UFH at presentation if no contraindications[5], but do not delay cardioversion

- Obtain EKG and echocardiogram and consult Cardiology
- Assess for management of AF/atrial flutter and long term anticoagulation, see Page 6

LMWH = low molecular weight heparin
UFH = unfractionated heparin

[1] Refer to GCC home page (for internal use only)
[2] Refer to Cardiac Monitoring Admission and Discharge Policy (#CLN0511)
[3] Transfer to cardiac monitoring may not be necessary for newly-diagnosed, rate controlled asymptomatic patients in the outpatient setting
[4] See Appendix A for Risk Factors for the Development of New-Onset AF/Atrial Flutter
[5] See Appendix B for Contraindications to Anticoagulation Therapy

Atrial Fibrillation (AF) and Atrial Flutter Inpatient Management - Adult

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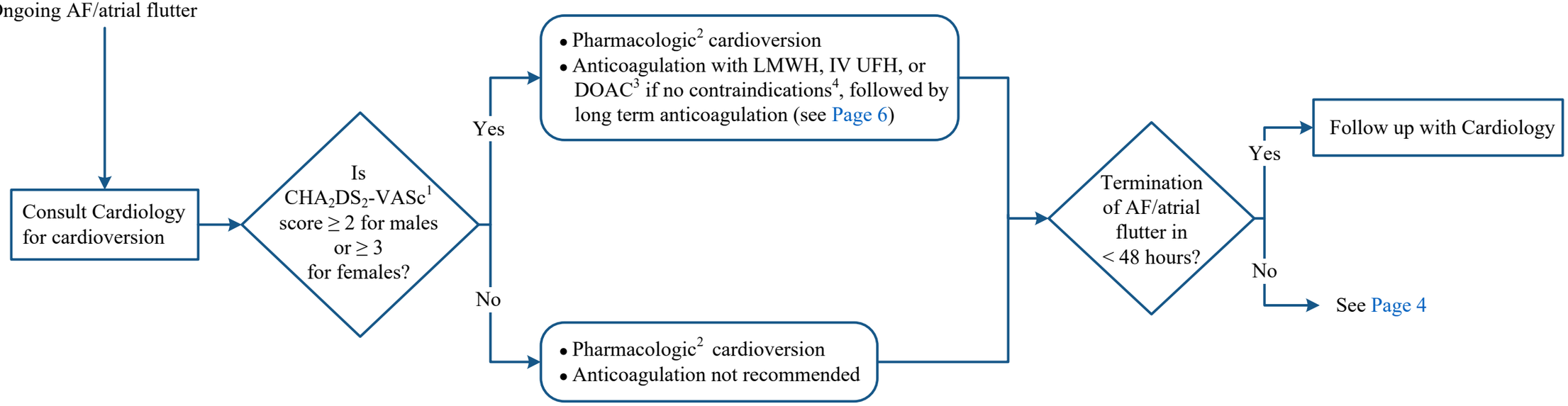
PRESENTATION **RISKS** **TREATMENT** **FOLLOW-UP**

- Hemodynamically stable and
- Onset < 48 hours and
- Ongoing AF/atrial flutter



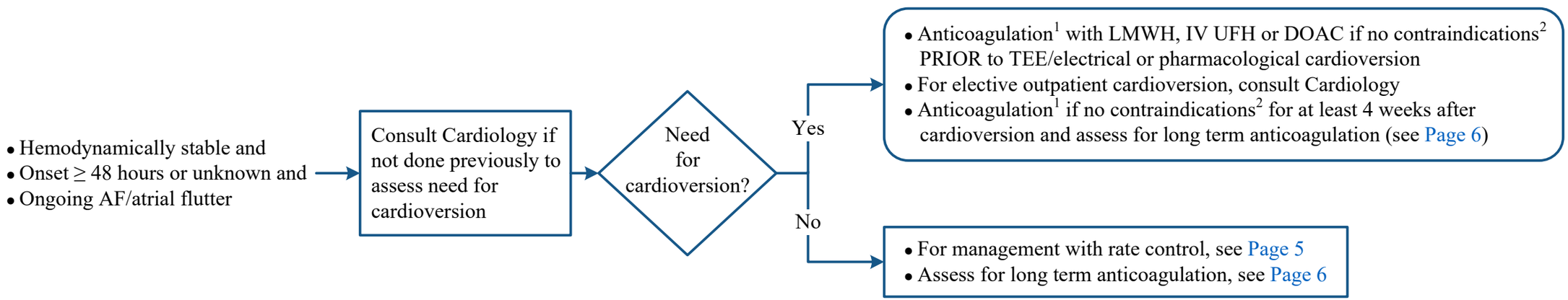
DOAC = direct oral anticoagulant
LMWH = low molecular weight heparin
UFH = unfractionated heparin

[1] See Appendix C for Risk Score for Stroke in Patients with AF/Atrial Flutter
[2] See Appendix D for Ibutilide Exclusion Criteria
[3] See Appendix E for Anticoagulation Therapy Options for Cancer Patients
[4] See Appendix B for Contraindications to Anticoagulation Therapy

Atrial Fibrillation (AF) and Atrial Flutter Inpatient Management - Adult

Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.*

PRESENTATION **ASSESSMENT** **TREATMENT**



DOAC = direct oral anticoagulant
LMWH = low molecular weight heparin
TEE = transesophageal echocardiogram
UFH = unfractionated heparin

[1] See Appendix E for Anticoagulation Therapy Options for Cancer Patients
[2] See Appendix B for Contraindications to Anticoagulation Therapy

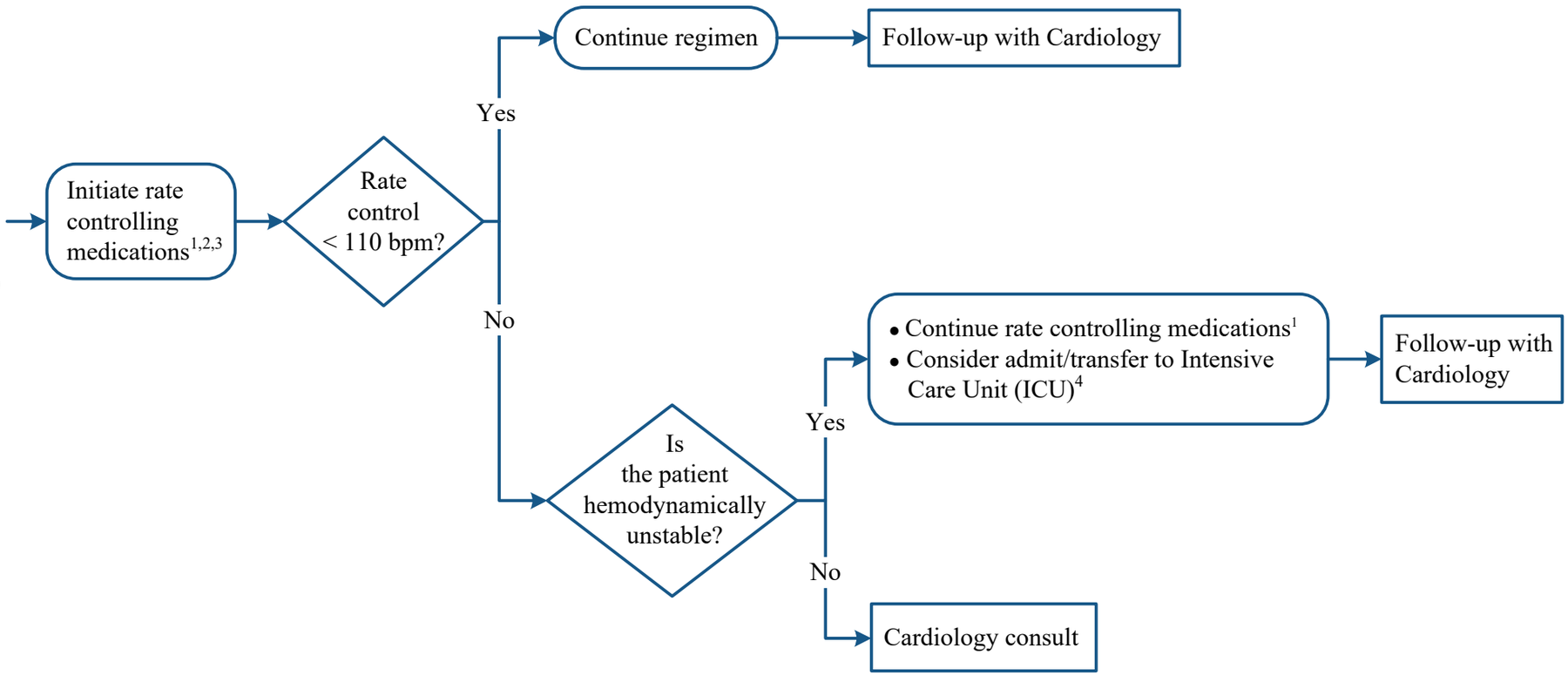
Atrial Fibrillation (AF) and Atrial Flutter Inpatient Management - Adult

Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.*

Rate Control

Factors to consider for treatment include:

- Persistent AF/atrial flutter
- Fewer symptoms
- Age > 65 years
- Hypertension
- No history of heart failure (HF)
- Patient preference
- Refractory to previous anti-arrhythmic drug therapy

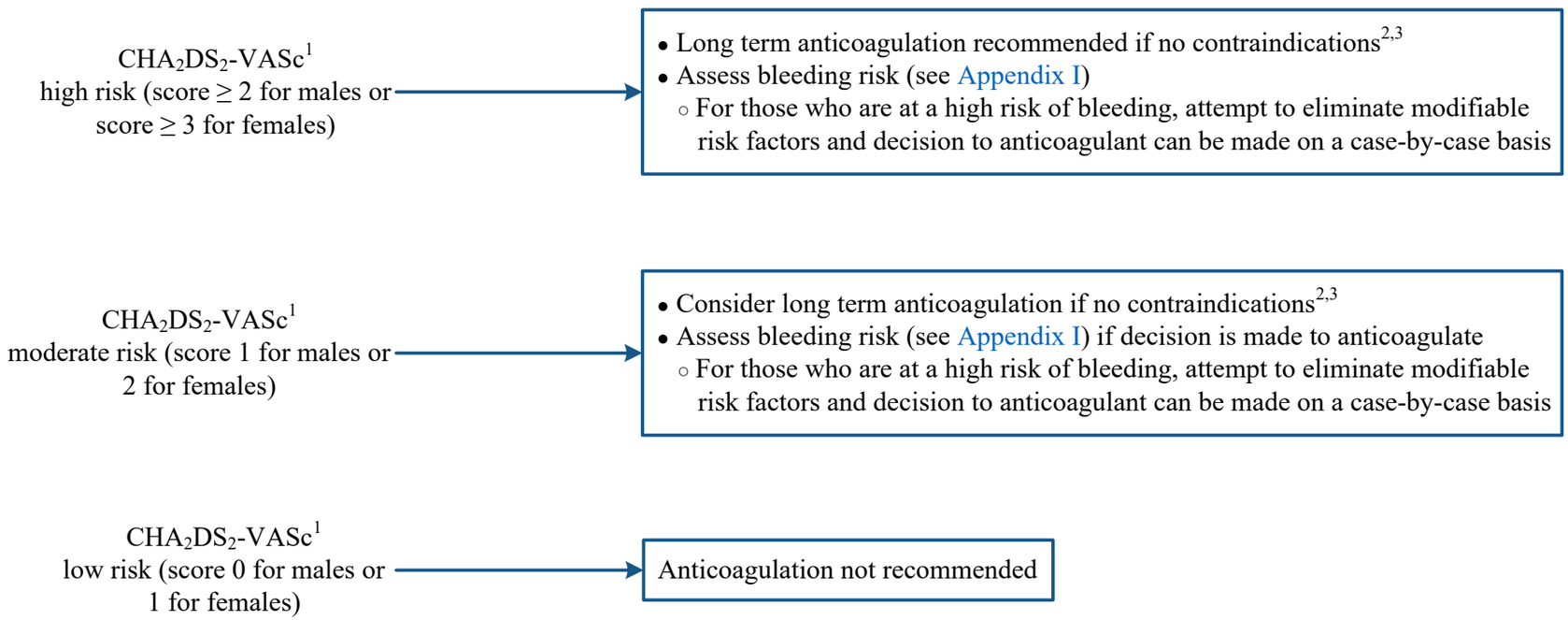


[1] Beta blockers, calcium channel blockers, digoxin. Consider Cardiology consult prior to ordering digoxin for patients with atrial fibrillation with rapid ventricular response (RVR).
[2] See Appendix F for Special Considerations Regarding Drug Choice for Rate Control
[3] See Appendix G for Common Medication Dosage for Rate Control of AF/Atrial Flutter
[4] Criteria for admit/transfer to ICU:
- Progressive hemodynamic instability
- Failure to respond to rate control agents

Atrial Fibrillation (AF) and Atrial Flutter Inpatient Management - Adult

LONG TERM MANAGEMENT OF ANTICOAGULATION IN PATIENTS WITH AF/ATRIAL FLUTTER

TREATMENT



OAC = oral anticoagulant
PCI = percutaneous coronary intervention

[1] See Appendix C for Risk Scores for Stroke in Patients with AF/Atrial Flutter
[2] See Appendix B for Contraindications to Anticoagulation Therapy
[3] See Appendix H for Anticoagulation Recommendations for Patients on OAC for AF/Atrial Flutter needing PCI

Atrial Fibrillation (AF) and Atrial Flutter Inpatient Management - Adult

APPENDIX A: Risk Factors for the Development of New-Onset AF/Atrial Flutter

Patient Factors:

- Acid-base abnormalities
- Advanced age
- Anemia
- Electrolyte abnormalities
- Fluid overload
- Acute coronary syndrome (ACS)
- Hypertension
- Hyperthyroid
- Alcohol use
- Heart failure
- Hypotension
- Hypoxemia
- Male sex
- Obesity
- Recent (within 24-48 hours) thoracic surgery (*e.g.,* esophageal, lung, heart)

APPENDIX B: Contraindications to Anticoagulation Therapy

Absolute contraindications:

- Major active bleeding (bleeding requiring > 2 units packed red blood cells (PRBC) transfusion, decrease in hemoglobin by ≥ 2 g/dL, or bleeding in a critical area or organ)
- Platelet count < 25 K/microliter, consult to Benign Hematology
- Spinal procedure and/or epidural placement[1]
- Severe uncontrolled malignant hypertension

Relative contraindications:

- Brain metastases with higher risk of bleeding (renal, choriocarcinoma, melanoma, thyroid cancer)
- Intracranial or central nervous system (CNS) bleeding within the past 4 weeks
- Recent high-risk surgery or bleeding event
- Active but non-life threatening bleeding
- Active gastrointestinal (GI) ulceration at high risk of bleeding
- Platelet count < 50 K/microliter, consider consult to Benign Hematology
- Patient on active protocol that prohibits use of anticoagulation

[1] Refer to Peri-Procedure Management of Anticoagulants algorithm

APPENDIX C: Risk Score for Stroke in Patients with AF/Atrial Flutter

Stroke or Systemic Embolism:

CHA_2DS_2-VAS_c Score

	Condition	Points
C	Congestive Heart Failure	1
H	Hypertension: blood pressure consistently above 140/90 mmHg (or treated hypertension on medication)	1
A_2	Age ≥ 75 years	2
D	Diabetes mellitus	1
S_2	Prior stroke or TIA or thromboembolism	2
V	Vascular disease	1
A	Age 65-74	1
S_c	Sex category (1 point for female)	1

TIA = transient ischemic attack

APPENDIX D: Ibutilide Exclusion Criteria

- Bundle branch block (BBB) (QRS > 120 ms)
- Preexisting 2nd/3rd degree atrioventricular block (AVB)
- Prolonged QT (QTc > 480) or Brugada syndrome
- Potassium level < 3 mmol/L
- Patient already on an antiarrhythmic
- Pregnancy
- Severe hepatic or renal insufficiency with creatinine clearance (CrCl) < 35 mL/minute

APPENDIX E: Anticoagulation Therapy Options for Cancer Patients[1,2]

LMWH Regimens for Treatment of Cancer Associated Thrombosis

DRUG	DOSE/ROUTE/FREQUENCY	MONITORING[3,4]	DOSE ADJUSTMENTS
Enoxaparin (Lovenox®)	1 mg/kg subcutaneously every 12 hours **or** 1.5 mg/kg subcutaneously once daily in selected patients • Limited data suggest dose of 0.75-0.85 mg/kg every 12 hours in obese patients (BMI ≥ 40 kg/m^2)	• Baseline: Hemoglobin/hematocrit, platelet count, SCr and aPTT/PT • Therapeutic laboratory tests: Routine monitoring not required. However, antifactor Xa levels may be useful in certain high-risk patients (*e.g.*, obesity, malnutrition, renal insufficiency, and unexplained bleeding or thrombosis) • Surgical inpatient: ◦ Hemoglobin/hematocrit and platelet count 24 hours after starting LMWH, then every 3 days from days 4-14 unless LMWH is stopped or patient is discharged ◦ After day 14, hemoglobin/hematocrit and platelet count at least once weekly • Medical inpatient and all outpatient: ◦ New start: For medical patients, hemoglobin/hematocrit and platelet count at least once weekly. For outpatient, no other monitoring needed except platelet count at least once during the first 14 days of therapy if prior recent (within 30 days) exposure to heparin or LMWH. ◦ Maintenance therapy: Hemoglobin/hematocrit, platelet count, serum creatinine, and hepatic function tests at least once yearly - If CrCl 30-60 mL/minute, serum creatinine every 6 months - If CrCl < 30 mL/minute, serum creatinine every 3 months	Renal: • If CrCl 20-30 mL/minute: 1 mg/kg once daily • If CrCl < 20 mL/minute: Avoid use of enoxaparin Weight: • Obtain anti-Xa level in patients with weight < 50 kg or weight > 150 kg or BMI ≥ 40 kg/m^2 ◦ For 1 mg/kg every 12 hour dosing regimen: Adjust dose to obtain anti-Xa level of 0.6-1 IU/mL (4-6 hours after fourth dose) ◦ For 1.5 mg/kg once daily dosing regimen: Adjust dose to obtain anti-Xa level of 1-2 IU/mL (4-6 hours after fourth dose) Platelet count: • Limited data suggest the following dose modification: ◦ For platelet count > 50 K/microliter: Full dose of 1 mg/kg every 12 hour; alternative dose is 1.5 mg/kg once daily ◦ For platelet count between 25-50 K/microliter: Half dose of 0.5 mg/kg every 12 hours ◦ For platelet count < 25 K/microliter: Hold all anticoagulants

CrCl = creatinine clearance (mL/minute); LMWH = low molecular weight heparin; SCr = serum creatinine

Continued on next page

[1] Prior to anticoagulation therapy, assess for bleeding risk (see Appendix I)
[2] For bleeding complications refer to Emergency Anticoagulation Reversal Order Set
[3] If lab results indicate heparin induced thrombocytopenia, follow management per Heparin Induced Thrombocytopenia (HIT) Treatment algorithm
[4] See the Anticoagulant Management and Required Laboratory Monitoring Policy (#CLN0984)

APPENDIX E: Anticoagulation Therapy Options for Cancer Patients[1,2] - continued

Unfractionated Heparin (UFH)	
TREATMENT	**MONITORING[3,4]**
IV heparin infusion (refer to Adult Heparin Infusion Order Set for dosing)	• Baseline: Hemoglobin/hematocrit, platelet count, and aPTT/PT • Therapeutic laboratory tests: aPTT to achieve specified target range per protocol for therapeutic doses • Inpatient: ◦ Hemoglobin/hematocrit and platelet count 24 hours after starting heparin infusion, then every 2 days from days 4-14 unless heparin is stopped ◦ After day 14, hemoglobin/hematocrit and platelet count at least once weekly • Outpatient: ◦ New start: Platelet count at least once during the first 14 days of therapy regardless of prior exposure history ◦ Maintenance therapy: Hemoglobin/hematocrit and platelet count every 3 months

Warfarin (Selected Vitamin K Antagonist) – For long-term management	
TREATMENT	**MONITORING[3,4]**
• Overlap warfarin (2.5-5 mg PO) with induction therapy (low molecular weight heparin (LMWH) or Factor Xa Inhibitor) beginning on Day 1 of therapy • Continue induction therapy until INR ≥ 2 for two days, AND patient has received at least 4-5 days of induction therapy overlap	• General INR goal: 2-3 • Mechanical aortic valve, INR goal: 2-3 • Mechanical mitral valve, INR goal: 2.5-3.5 • Baseline: Hemoglobin/hematocrit, platelet count, PT/INR, and hepatic function tests • Therapeutic laboratory tests: INR to achieve specified target range • Inpatient: Hemoglobin/hematocrit, platelet count, and INR at least once weekly • Outpatient: INR every 3 months at a minimum; hemoglobin/hematocrit, platelet count, serum creatinine, and hepatic function tests at least once year

[1] Prior to anticoagulation therapy, assess for bleeding risk (see Appendix I)
[2] For bleeding complications refer to Emergency Anticoagulation Reversal Order Set
[3] If lab results indicate heparin induced thrombocytopenia, follow management per Heparin Induced Thrombocytopenia (HIT) Treatment algorithm
[4] See the Anticoagulant Management and Required Laboratory Monitoring Policy (#CLN0984)

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APPENDIX E: Anticoagulation Therapy Options for Cancer Patients[1,2] - continued

Fondaparinux (Arixtra®) (Factor Xa Inhibitor)[3] – Fondaparinux dose subcutaneously daily			
ACTUAL BODY WEIGHT (kg)	**FONDAPARINUX DOSE**	**MONITORING[3,4]**	**DOSE ADJUSTMENTS**
< 50 50 – 100 > 100	5 mg 7.5 mg 10 mg	• Baseline: Hemoglobin/hematocrit, platelet count, aPTT/PT, and serum creatinine • Therapeutic laboratory tests: Routine monitoring not required. However, antifactor Xa levels may be useful in certain high-risk patients (*e.g.*, obesity, malnutrition, renal insufficiency, and unexplained bleeding or thrombosis) • Inpatient: Hemoglobin/hematocrit, platelet count, and serum creatinine at least once weekly • Outpatient: Hemoglobin/hematocrit, platelet count, serum creatinine, and hepatic function tests at least once yearly ◦ If CrCl 30-60 mL/minute, serum creatinine every 6 months ◦ If CrCl < 30 mL/minute, serum creatinine every 3 months	Renal: • If CrCl is between 30-50 mL/minute: use with caution • If CrCl is < 30 mL/minute: contraindicated Weight: • For BMI ≥ 40 kg/m^2: no dose adjustment necessary Platelet count: • Use fondaparinux with caution in patients with platelet count < 100 K/microliter

CrCl = creatinine clearance (mL/minute)

[1] Prior to anticoagulation therapy, assess for bleeding risk (see Appendix I)
[2] For bleeding complications refer to Emergency Anticoagulation Reversal Order Set
[3] If lab results indicate heparin induced thrombocytopenia, follow management per Heparin Induced Thrombocytopenia (HIT) Treatment algorithm
[4] See the Anticoagulant Management and Required Laboratory Monitoring Policy (#CLN0984)

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APPENDIX E: Anticoagulation Therapy Options for Cancer Patients - continued

Direct Oral Anticoagulants (DOACs)[1,2] are suggested for prevention of thromboembolism in patients with atrial fibrillation. There is no evidence available with DOACs management in cancer patients who experience chemotherapy induced thrombocytopenia. DOACs are not recommended in patients with active gastrointestinal cancer.

<table>
<tr><th>DOACs[1,2]</th><th colspan="2">Rivaroxaban (Xarelto®) Oral Factor Xa Inhibitor</th><th colspan="2">Apixaban (Eliquis®) Oral Factor Xa Inhibitor</th></tr>
<tr><td rowspan="3">Non-valvular atrial fibrillation (NVAF)
Not for any heart valve</td><td rowspan="2">CrCl > 50 mL/minute</td><td rowspan="2">20 mg once daily with food in evening</td><td>Age ≥ 80 years
Weight ≤ 60 kg
SCr ≥ 1.5 mg/dL</td><td>0-1 criterion: 5 mg twice daily
2-3 criteria: 2.5 mg twice daily</td></tr>
<tr><td>ESRD on HD</td><td>5 mg twice daily
If age ≥ 80 years or body weight ≤ 60 kg then 2.5 mg twice daily</td></tr>
<tr><td>CrCl ≤ 50 mL/minute</td><td>15 mg once daily with food in evening</td><td>Strong CYP 3A4 inhibitors (ketoconazole, itraconazole, ritonavir, clarithromycin) <u>and</u> P-gp inhibitors</td><td>Decrease current dose by 50%
[If on 2.5 mg twice daily then AVOID]</td></tr>
<tr><td>Use in liver disease</td><td colspan="2">CTP[3] class B or C: NOT recommended</td><td colspan="2">Use in CTP[3] class C not recommended and there is limited experience for use in class B</td></tr>
<tr><td>Significant drug-drug interactions[4]</td><td colspan="4">P-glycoprotein and CYP 3A4 interactions</td></tr>
<tr><td>Class specific contraindications</td><td colspan="4">Moderate to severe mitral stenosis or mechanical heart valve</td></tr>
<tr><td>Monitoring parameters</td><td colspan="2">• Baseline: Hemoglobin/hematocrit, platelet count, aPTT/PT, SCr, and hepatic function tests
• Therapeutic laboratory tests: Routine monitoring not required. However, antifactor Xa levels may be useful in certain high-risk patients (e.g., obesity, malnutrition, renal insufficiency, and unexplained bleeding or thombosis). Antifactor Xa levels are only available for apixaban and rivaroxaban currently.</td><td colspan="2">• Inpatient: Hemoglobin/hematocrit, platelet count, and SCr at least once weekly
• Outpatient: Hemoglobin/hematocrit, platelet count, SCr, and hepatic function tests at least once yearly
◦ If CrCl 30-60 mL/minute, serum creatinine every 6 months
◦ If CrCl < 30 mL/minute, serum creatinine every 3 months</td></tr>
</table>

CrCl = creatinine clearance (mL/minute); CTP = Child-Turcotte-Pugh score; ESRD = end stage renal disease; HD = hemodialysis; SCr = serum creatinine

[1] Prior to anticoagulation therapy, assess for bleeding risk (see Appendix I)
[2] For bleeding complications refer to Emergency Anticoagulation Reversal Order Set
[3] See Appendix J for Child-Turcotte-Pugh (CTP) Scoring System
[4] Assessing for drug-drug interactions: Lexicomp® or Micromedex®, available at insidemdanderson.org (for internal use only)

Continued on next page

Atrial Fibrillation (AF) and Atrial Flutter Inpatient Management - Adult

APPENDIX E: Anticoagulation Therapy Options for Cancer Patients - continued

Direct Oral Anticoagulants (DOACs)[1,2] are suggested for prevention of thromboembolism in patients with atrial fibrillation. There is no evidence available with DOACs management in cancer patients who experience chemotherapy induced thrombocytopenia. DOACs are not recommended in patients with active gastrointestinal cancer.

<table>
<tr><th>DOACs[1,2]</th><th colspan="2">Edoxaban (Savaysa®)[3] Oral Factor Xa Inhibitor</th><th colspan="2">Dabigatran (Pradaxa®) Direct Thrombin Inhibitor</th></tr>
<tr><td rowspan="6">Non-valvular atrial fibrillation (NVAF)
Not for any heart valve</td><td rowspan="2">CrCl > 95 mL/minute
MUST assess CrCl before initiating</td><td rowspan="2">Avoid use</td><td>CrCl > 30 mL/minute</td><td>150 mg twice daily</td></tr>
<tr><td>CrCl 15-30 mL/minute</td><td>75 mg twice daily</td></tr>
<tr><td rowspan="2">CrCl > 50 mL/minute to ≤ 95 mL/minute</td><td rowspan="2">60 mg daily</td><td>CrCl < 15 mL/minute <u>or</u> HD</td><td>No recommendations</td></tr>
<tr><td>CrCl 30-50 mL/minute <u>and</u> dronaderone or ketoconazole</td><td>75 mg twice daily</td></tr>
<tr><td>CrCl 15-50 mL/minute</td><td>30 mg daily</td><td rowspan="2">CrCl < 30 mL/minute <u>and</u> P-glycoprotein inhibitor (Pgp-I)</td><td rowspan="2">Avoid use</td></tr>
<tr><td>CrCl < 15 mL/minute</td><td>Avoid use</td></tr>
<tr><td>Use in liver disease</td><td colspan="2">CTP[4] class B or C: NOT recommended</td><td colspan="2">No recommendations by manufacturer</td></tr>
<tr><td>Class specific contraindications</td><td colspan="4">Moderate to severe mitral stenosis or mechanical heart valve</td></tr>
<tr><td>Significant drug-drug interactions[5]</td><td colspan="2">P-glycoprotein and CYP 3A4 interactions</td><td colspan="2">P-glycoprotein interactions</td></tr>
<tr><td>Monitoring parameters</td><td colspan="4">• Baseline: Hemoglobin/hematocrit, platelet count, aPTT/PT, SCr, and hepatic function tests
• Therapeutic laboratory tests: Routine monitoring not required.
◦ Edoxaban: Antifactor Xa levels may be useful in certain high-risk patients (e.g., obesity, malnutrition, renal insufficiency, and unexplained bleeding or thrombosis)
◦ Dabigatran: Thrombin time (TT) may be useful in certain high-risk patients (e.g., obesity, malnutrition, renal insufficiency, and unexplained bleeding or thrombosis)
• Inpatient: Hemoglobin/hematocrit, platelet count, and SCr at least once weekly
• Outpatient: Hemoglobin/hematocrit, platelet count, SCr, and hepatic function tests at least once yearly
◦ If CrCl 30-60 mL/minute, serum creatinine every 6 months
◦ If CrCl < 30 mL/minute, serum creatinine every 3 months</td></tr>
</table>

CrCl = creatinine clearance (mL/minute); CTP = Child-Turcotte-Pugh score; HD = hemodialysis; LMWH = low molecular weight heparin; SCr = serum creatinine

[1] Prior to anticoagulation therapy, assess for bleeding risk (see Appendix I)
[2] For bleeding complications refer to Emergency Anticoagulation Reversal Order Set
[3] Edoxaban is currently not on the MD Anderson formulary
[4] See Appendix J for Child-Turcotte-Pugh (CTP) Scoring System
[5] Assessing for drug-drug interactions: Lexicomp® or Micromedex®, available at insidemdanderson.org (for internal use only)

APPENDIX F: Special Considerations Regarding Drug Choice[1] for Rate Control

Clinical Condition	Drug of Choice[1]	Caution
Reactive airway disease (asthma, chronic obstructive pulmonary disease)	Calcium channel blockers	Beta selective beta blockers may be used with caution
Hypertension and heart failure (HF) with normal left ventricular systolic function	Beta blockers or calcium channel blockers	
Left ventricular systolic dysfunction with or without HF	Beta blockers or digoxin	Beta blockers should be used with caution as not to decompensate. Calcium channel blockers are contraindicated.
No other cardiovascular disease	Beta blockers or calcium channel blockers	

APPENDIX G: Common Medication Dosage for Rate Control of AF/Atrial Flutter[2,3]

	Intravenous Administration	Usual Oral Maintenance Dose
Beta Blockers		
Metoprolol tartrate	2.5-5 mg IV bolus over 2 minutes; up to 3 doses	25-100 mg twice daily
Metoprolol succinate (XL)	N/A	50-400 mg once daily
Atenolol	N/A	25-100 mg once daily
Esmolol	500 mcg/kg IV bolus over 1 minute, then 50-300 mcg/kg/minute IV	N/A
Propranolol	1 mg IV over 1 minute, up to 3 doses at 2-minute intervals	10-40 mg three to four times a day
Nadolol	N/A	10-240 mg four times a day
Carvedilol	N/A	3.125-25 mg twice daily
Bisoprolol	N/A	2.5-10 mg once daily
Nondihydropyridine Calcium Channel Blockers		
Verapamil	0.075-0.15 mg/kg IV bolus over 2 minutes; may give an additional 10 mg after 30 minutes if no response, then 0.005 mg/kg/minute infusion	180-480 mg once daily (extended release)
Diltiazem	0.25 mg/kg IV bolus over 2 minutes, then 5-15 mg/hour	120-360 mg once daily (extended release)
Digitalis Glycosides[4]		
Digoxin	8-12 mcg/kg (using ideal body weight) IV bolus to a maximum of 1 mg	0.125-0.25 mg once daily

[1] Obtain EKG for baseline pre-excitation
[2] Refer to Adult Cardiac Medication Monitoring Policy (#CLN0500)
[3] Not to be used if evidence of pre-excitation on EKG
[4] Consider Cardiology consult prior to ordering digoxin for patients with atrial fibrillation with rapid ventricular response (RVR)

APPENDIX H: Anticoagulation Recommendations for Patients on Oral Anticoagulant (OAC) for AF/Atrial Flutter needing PCI

Time From PCI	Default Strategy	High Ischemic/Thrombotic Risk[1] and Low Bleeding Risk[2]	Low Ischemic/Thrombotic Risk or High Bleeding Risk[3]
Inpatient stay until time of discharge after PCI (up to 1 week after PCI)	OAC[4] + DAPT[5]	OAC[4] + DAPT[5]	OAC[4] + DAPT[5]
Up to 1 month	OAC[4] + P2Y12 inhibitor[6]	OAC[4] + DAPT[5]	OAC[4] + P2Y12 inhibitor[6]
Up to 3 months	OAC[4] + P2Y12 inhibitor[6]	OAC[4] + P2Y12 inhibitor[6]	OAC[4] + P2Y12 inhibitor[6]
Up to 6 months	OAC[4] + P2Y12 inhibitor[6]	OAC[4] + P2Y12 inhibitor[6]	OAC[4] + P2Y12 inhibitor[6]
Up to 12 months	OAC[4] + P2Y12 inhibitor[6]	OAC[4] + P2Y12 inhibitor[6]	OAC[4] alone
Greater than 12 months	OAC[4] alone	OAC[4] alone	OAC[4] alone

Note: Doses should be based on those in Appendix E except when rivaroxaban is used with P2Y12 inhibitor; the rivaroxaban dose is 15 mg daily regardless of renal function

DAPT = dual antiplatelet therapy
DOAC = direct oral anticoagulant
PCI = percutaneous coronary intervention

[1] High thrombotic risk may include patients with left main stent, multivessel PCI/stenting, etc
[2] Low risk of bleeding is defined as HAS-BLED score of 0-2 (see Appendix I)
[3] High risk of bleeding is defined as HAS-BLED score of ≥ 3 (see Appendix I)
[4] If no contraindications, DOAC is preferred over warfarin
[5] DAPT includes aspirin plus P2Y12 inhibitor. If aspirin is given with OAC, use aspirin 81 mg daily plus a proton pump inhibitor.
[6] Clopidogrel is the drug of choice for P2Y12 inhibitor; however, ticagrelor may be considered in patients with high thrombotic risk and acceptable bleeding risks (see Appendix I)

APPENDIX I: Risk Score for Bleeding in patients with AF/Atrial Flutter[1]

Bleeding:

HAS-BLED Score

	Condition	Points
H	Hypertension	1
A	Abnormal liver or renal function (1 point each)	1
S	Stroke	1
B	Bleeding	1
L	Labile INR	1
E	Elderly (age > 65)	1
D	Drugs or alcohol (1 point each)	1

High risk: ≥ 3

[1] If patient has high risk of bleeding on full dose anticoagulation, consider aspirin 81 mg for anticoagulation

APPENDIX J: Child-Turcotte-Pugh (CTP) Scoring System

Chemical and Biochemical Parameters	Points for Increasing Abnormality		
	1	2	3
Hepatic encephalopathy	None	Grade 1 or 2, or suppressed with medication	Grade 3 or 4, or refractory to medication
Ascites	None	Mild to moderate (diuretic responsive)	Severe (diuretic refractory)
Serum albumin	> 3.5 g/dL	2.8-3.5 g/dL	< 2.8 g/dL
Total bilirubin For primary biliary cirrhosis	< 2 mg/dL 1-4 mg/dL	2-3 mg/dL 4-10 mg/dL	> 3 md/dL > 10 mg/dL
Prothrombin time prolonged or INR	< 4 seconds < 1.7	4-6 seconds 1.7-2.3	> 6 seconds > 2.3

*CTP score is obtained by adding the score for each parameter.

CTP class:

Class A = 5 to 6 points

Class B = 7 to 9 points

Class C = 10 to 15 points

SUGGESTED READINGS

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MD Anderson Institutional Policy #CLN1202 - Advance Care Planning Policy
Advance Care Planning (ACP) Conversation Workflow (ATT1925)

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DEVELOPMENT CREDITS

This practice consensus statement is based on majority opinion of the Atrial Fibrillation Management experts at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

Core Development Team Leads

Jean-Bernard Durand, MD (Cardiology)
Kaveh Karimzad, MD (Cardiology)
Michael Kroll, MD (Benign Hematology)
Katy Toale, PharmD (Pharmacy Quality-Regulatory)

Workgroup Members

Wendy Garcia, BS♦
Vijaya Gottumukkala, MD (Anesthesiology & Perioperative Medicine)
Poonam Jewani, PharmD (Pharmacy Clinical Programs)
Peter Kim, MD (Cardiology)
Carla Patel, MS, RN, ACNP (Thoracic & Cardiovascular Surgery)
Mary Lou Warren, DNP, APRN, CNS-CC♦

♦ Clinical Effectiveness Development Team