Cardiovascular Coding for General Surgery

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Agenda

• Hypertension
• Secondary Diagnosis Codes
• Current Complications Following STEMI or NSTEMI
• Atrial Fibrillation and Atrial Flutter
• Paroxysmal Tachycardia
• Other Cardiac Arrhythmias
• Embolisms/Thrombosis
• Atherosclerosis/Stenosis
• Varicose Veins

Hypertension

• Benign hypertension – I10
• Malignant hypertension – I10
• Combination Codes
Examples

EXAMPLE 1
   - I10 Essential (primary) hypertension
   - I50.32 Chronic diastolic (congestive) heart failure

EXAMPLE 2
Assessment: Hypertension with hypertensive chronic diastolic congestive heart failure
   - I11.0 Hypertensive heart disease with heart failure
   - I50.32 Chronic diastolic (congestive) heart failure

Example

The patient is a 68-year-old gentleman with hypertension and stage 3 CKD with a creatinine of 1.8.
   - I12.9 Hypertensive chronic kidney disease with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
   - N18.3 Chronic kidney disease, stage 3 (moderate)
Acute Myocardial Infarction (AMI)

General Surgeon is called to the ED. A 59-year-old man has presented with a 90-minute history of severe crushing chest pain. His ECG shows 3 mm ST segment elevation, and he is diagnosed with an acute MI. He is given loading doses of aspirin and clopidogrel. Forty-five minutes after admission, he undergoes successful primary percutaneous coronary intervention (PCI) with the insertion of a drug eluting stent into his critically narrowed left anterior descending coronary artery. By the time he is returned to the coronary care unit 30 minutes after the procedure, he is pain free and there is partial resolution of his ECG changes.

I21.02 ST elevation (STEMI) myocardial infarction involving left anterior descending coronary artery

Subsequent MI

- When a code from category I22 is assigned, there should also be a code from category I21 assigned to designate the initial myocardial infarction site.

Example

Martha was admitted to the hospital after suffering an acute STEMI of the left circumflex. Two days after admission, she suffered a second anteroapical STEMI. Cardiology is called back to the hospital to see her for the new MI.

I22.0 Subsequent ST elevation (STEMI) myocardial infarction of anterior wall

I21.21 ST elevation (STEMI) myocardial infarction involving left circumflex coronary artery
Secondary Codes

There are instructional notes under the I21 and I22 categories for myocardial infarctions that state that additional codes should be used to identify:

- Exposure to environmental tobacco smoke (Z77.22)
- History of tobacco use (Z87.891)
- Occupational exposure to environmental tobacco smoke (Z57.31)
- Tobacco dependence (F17.-)
- Tobacco use (Z72.0)

Example

Patient presents to a rural hospital with chest pressure on and off, arm and shoulder pain, and rapid heartbeat for the past hour. He is diagnosed with acute MI of the left main coronary artery and is administered tPA. He is stabilized and transferred to another facility that has an advanced coronary unit within 2 hours.

- Physician at First Hospital: I21.01 ST elevation (STEMI) myocardial infarction involving left main coronary artery.
- Physician at Second Hospital: I21.01 ST elevation (STEMI) myocardial infarction involving left main coronary artery.
Complications Following STEMI or NSTEMI

- Hemopericardium
- Atrial septal defect
- Ventricular septal defect
- Rupture of cardiac wall without hemopericardium
- Rupture of chordae tendineae
- Thrombosis of atrium, auricular appendage, and ventricle
- Postinfarction angina
- Other complications

EXAMPLE A
Jack is seen for postinfarction angina. He is feeling better and his angina symptoms are decreasing.

EXAMPLE B
Jack is seen for postinfarction angina. He suffered a non-Q wave MI 1 week ago. He is feeling better and his angina symptoms are decreasing.

I23.7 Postinfarction angina
I21.4 Non-ST elevation (NSTEMI) myocardial infarction
Old Myocardial Infarction vs Aftercare

**Example**
John suffered an acute MI of the right coronary artery 3 weeks ago. He is presenting for his 2 week hospital follow-up.

I21.11 ST elevation (STEMI) myocardial infarction involving right coronary artery

**Example**
Barbara suffered an acute MI of the LAD and underwent stent placement. She is presenting 6 weeks postinfarction. She is complaining of continued fatigue.

Z51.89 Encounter for other specified aftercare
Z48.812 Encounter for surgical aftercare following surgery on the circulatory system

Atrial Fibrillation

- Atrial fibrillation
  - the heart's electrical signals begin in another part of the atria or nearby pulmonary veins instead of the SA node.
  - The disorganized signals cause the atria to fibrillate
- Occurs more often in men than women
- Can occur in the absence of comorbidities
Etiology

- Atrial fibrillation (AF) is associated with the following risk factors:
  - Hemodynamic stress
  - Atrial ischemia
  - Inflammation
  - Noncardiovascular respiratory causes
  - Alcohol and drug use
  - Endocrine disorders
  - Neurologic disorders
  - Genetic factors
  - Advancing age

Atrial fibrillation

- The codes for atrial fibrillation and atrial flutter are:
  - Paroxysmal atrial fibrillation (I48.0)
  - Persistent atrial fibrillation (I48.1)
  - Chronic atrial fibrillation (I48.2)
Atrial Fibrillation

• Paroxysmal AFib – spontaneous termination of recurrent AFib
• Persistent AFib – is sustained recurrent AFib, regardless whether the arrhythmia is terminated.
• Permanent AFib – is when the AFib is recognized as the accepted rhythm and the treatment goals are adjusted

Example

PREOPERATIVE DIAGNOSIS: Persistent atrial fibrillation.
POSTOPERATIVE DIAGNOSIS: Persistent atrial fibrillation.
OPERATION: Minimally invasive epicardial atrial fibrillation ablation
OPERATIVE FINDINGS/COMMENTS: Very thick left atrium. A full left atrial ablation lesion set was performed: Pulmonary vein isolation bilaterally. Superior left atrial connecting lesion, inferior left atrial connecting lesion, mitral valve annular lesion. Bi-directional block was achieved at the pulmonary veins bilaterally and the posterior left atrial box lesion. The left atrial appendage was very wide-based and high risk so it was left alone. The following ganglionic plexus stations positive were: R8, R9. Post-ablation testing, they were negative.
DESCRIPTION OF PROCEDURE: After the patient was placed in a comfortable supine position, after adequate general endotracheal anesthesia was obtained utilizing double lumen tube, the patient's positioning was changed to left lateral decubitus, right chest prepped and draped steriley. 7th intercostal mid axillary line a 10 mm 30 degree thoracoscope was introduced into the right hemithorax and a 4 centimeter working port incision was made at the third intercostal space. Her anatomy was such that the third interspace was too high. Nevertheless, we did a lot of work through the third interspace and then moved to the fifth interspace rather than the fourth as the fourth interspace was obliterated and essentially the fourth and fifth ribs were fused. Through the third interspace, the superior vena cava was fully mobilized with blunt dissection. The fibrous trigone was isolated with the AtriCure bipolar radiofrequency pin. Annular lesion down to the dome of the left atrium was performed with AtriCure cool rail bipolar radiofrequency device.

After this, the superior left atrial connecting lesion was performed to the base of the left atrial appendage with AtriCure cool rail. We then moved to the fifth interspace, the pericardium which was opened anterior to the phrenic nerve was extended down to the diaphragm and the pulmonary veins were encircled with an AtriCure Wolfe illuminating dissector with a glide path. High frequency stimulation of all ganglionic plexus stations were performed as the patient was in atrial fibrillation and the positive stations were R8 and R9, Post ablation testing revealed them to be negative. We then cardioverted the patient to sinus rhythm, pre-pulmonary vein ablation sensing paced at the superior pulmonary vein bifurcation inferior pulmonary vein. Three ablation lesion lines were placed in the atrial antrum with AtriCure bipolar radiofrequency clamp and post adulation testing at the superior pulmonary vein bifurcation in the inferior pulmonary vein revealed bi-directional block. A 24-French Blake drain was placed through the thoracoscopic port incision, the working port incision was closed in layers. The patient's positioning was then changed to right lateral decubitus.
7th intercostal space posterior axillary line, 10 mm 30 degree thoracoscope was introduced into the left hemithorax. A working port incision was made in the fourth intercostal space anterior axillary line and a Cardioversions medium soft tissue retractor inserted. The pericardium was opened posterior to the phrenic nerve and the posterior leaf was retracted laterally with silk sutures. The pericardial reflection between the superior pulmonary vein and left pulmonary artery was bluntly dissected. Since the patient was in sinus rhythm, sensing and pacing at the superior pulmonary vein bifurcation, inferior pulmonary vein occurred pre-ablation followed by high frequency stimulation of all ganglionic plexus stations which were negative. AtriCure Wolfe illuminating dissector with the glide path encircled the pulmonary veins, three ablation lesion lines at the atrial intrura were performed with bipolar radiofrequency clamp followed by completion of the inferior left atrial connecting lesion and the superior left atrial connecting lesion. Post ablation testing in the pulmonary veins revealed bi-directional block and the left atrial box lesion had bi-directional block as well.

The ligament of Marshall was then ablated with both the AtriCure bipolar radiofrequency pen as well as the cool rail device. It was not transected as it was very thick and concern was potential vessels in it. The left atrial appendage was very wide-based and I viewed it as high risk closure so it was left alone.

The pericardium was not closed, a 24-French Blake drain was placed in the left hemithorax and the working port incision was closed in layers. Lap, needle and instrument counts were correct. The patient tolerated the procedure well and was transferred to the recovery room suite then Intensive Care Unit West in stable condition.

Coding: I48.1 Persistent atrial fibrillation
Conduction System includes:
- Sinoatrial node
- Atrioventricular node
- Bundle of HIS
- Bundle branches
- Purkinje fibers
Symptoms of tachycardia include:
- Dizziness
- Shortness of breath
- Rapid pulse rate
- Palpitations
- Chest pain
- Syncope

Risk factors include:
- Heart disease
- Hypertension
- Smoking
- Heavy alcohol use
- Heavy caffeine use
- Use of recreational drugs
- Psychological stress/anxiety
- Age
- Heredity
Tachycardia

- Re-entry ventricular tachycardia
  - Created by an abnormal or extra electrical pathway in the conduction system
  - Allows impulses to travel backward abnormally
  - Starts another heartbeat
  - Leads to rapid heart rate

Example

- A 45-year-old male patient presents for electrophysiology test results. He originally complained of chest pain and palpitations with one episode of syncope. His results confirm re-entry ventricular tachycardia.

I47.0 Re-entry ventricular tachycardia
Tachycardia

- Supraventricular tachycardia (SVT)
  - Faster heart rate in the atria
  - Electrical impulses fire abnormally in the atria
  - Interferes with the impulses being sent by the sinoatrial node
  - The early beats speed up the heart rate, not allowing time for the heart to fill before it contracts

Example

- An 8-year-old boy is brought in by his parents with complaints of chest pain, shortness of breath and fatigue for one month. Upon examination his heart rate was 160 BPM. Labs and ECG are performed and he is diagnosed with supraventricular tachycardia.

I47.1 Supraventricular tachycardia
Tachycardia

• Ventricular tachycardia (Vtach)
  – Faster heart rate in the ventricles
  – Electrical impulses fire abnormally in the ventricles
  – Interferes with the impulses being sent from the sinoatrial node
  – The rapid heartbeat does not allow time for the heart to fill before it contracts

Example

• The cardiologist is called to the emergency department. A 60-year-old male, who is a skydiving instructor was giving lessons. He was urgently rushed to the ED after experiencing a terrifying episode during a jump. The patient states that he began to have weakness and fatigue during his last jump; while making his descent from the plane, he became very dizzy and thinks that he may have passed out for a brief period of time. He states that he barely made it to the ground without major injury.
Example

- Upon arrival to the ED, he was found to be in a wide complex ventricular tachycardia (VT) at a rate of 214 beats per minute (bpm). His systolic blood pressure was found to be 58 mmHg. He was cardioverted and given a bolus of IV amiodarone. The patient was then rushed to the cardiac cath lab.

I47.2 Ventricular tachycardia

Tachycardia

- Atrial fibrillation
  - the heart's electrical signals begin in another part of the atria or nearby pulmonary veins instead of the SA node.
  - The disorganized signals cause the atria to fibrillate
- Atrial flutter
  - the electrical signal travels along a pathway within the right atrium, moving in a “circuit”
Example

- POSTOPERATIVE DIAGNOSIS: Persistent atrial fibrillation PAF
- PROCEDURE PERFORMED: Cardioversion
- PROCEDURE NOTE: The patient was brought to the endoscopy suite and was prepped and draped in the usual manner. Using adhesive anterior-posterior patches at 250 joule synchronized biphasic shock resulted in normal sinus rhythm in the 60s. Anesthesia was provided by Smith anesthesia.

I48.1 Persistent atrial fibrillation

Documentation

- Clinical documentation should include:
  - Type

- Code selection is straightforward
ICD-10-CM Coding

- I47.0 Re-entry ventricular tachycardia
- I47.1 Supraventricular tachycardia
- I47.2 Ventricular tachycardia
- I47.9 Paroxysmal tachycardia, unspecified
- I48.0 Paroxysmal atrial fibrillation
- I48.1 Persistent atrial fibrillation
- I48.2 Chronic atrial fibrillation
- I48.3 Typical atrial flutter
- I48.4 Atypical atrial flutter
- R00.0 Tachycardia, unspecified

Example

The surgeon is called to the emergency department. A 60-year-old male, who is a skydiving instructor was giving lessons. He was urgently rushed to the ED after experiencing a terrifying episode during a jump. The patient states that he began to have weakness and fatigue during his last jump; while making his descent from the plane, he became very dizzy and thinks that he may have passed out for a brief period of time. He states that he barely made it to the ground without major injury. Upon arrival to the ED, he was found to be in a wide complex ventricular tachycardia (VT) at a rate of 214 beats per minute (bpm). His systolic blood pressure was found to be 58 mm Hg. He was cardioverted and given a bolus of IV amiodarone. The patient was then rushed to the cardiac cath lab.

I47.2 Ventricular tachycardia
Other Cardiac Arrhythmias

- Ventricular fibrillation
- Ventricular flutter
- Atrial premature depolarization
- Junctional premature depolarization
- Ventricular premature depolarization
- Sick sinus syndrome

Example

A 22-year-old female is seen in consultation for the evaluation of symptomatic premature ventricular contractions (PVCs). The patient had been experiencing fatigue, shortness of breath, frequent palpitations, and exercise intolerance for the last 5 years. Her past medical history was otherwise unremarkable, including no sudden death in the family. Further, she reported that the beta blockers and lifestyle modification had failed to resolve her symptoms. A review of 24-hour Holter monitoring demonstrated a total burden of 25,000 PVCs with left bundle morphology, in bigeminal and trigeminal pattern. Ischemic workup is negative. In view of the increased burden of symptomatic PVCs as well as no response to medication, she is considered for RF ablation.

I49.3 Ventricular premature depolarization
- Atrial emboli
- Paradoxical embolization
- Deep vein thrombosis

- I74.01 Saddle embolus of abdominal aorta
- I74.11 Embolism and thrombosis of thoracic aorta
- I74.3 Embolism and thrombosis of the lower extremities
- I82.210 Acute embolism and thrombosis of superior vena cava
- I82.413 Acute embolism and thrombosis of femoral vein, bilateral
A 47-year-old nonobese female presents for treatment. She originally presented to the Emergency Department with typical exertional chest pain which radiated to her left arm. All laboratory data was normal. ETT and myocardial perfusion scan were positive and angiography was done which revealed coronary artery disease. She presents today with unstable angina. She states that the chest pains are not regular, and occur while at rest at times.


I25.110 Atherosclerotic heart disease of native coronary artery with unstable angina pectoris

**Varicose Veins**

This 47-year-old male presented with a massive vein that extended from the left upper inner thigh down into the lower inner leg with stasis dermatitis. A detailed history was taken which revealed that this grossly abnormal vein pattern was causing not only considerable leg aches, pain, and throbbing and also resulting in frequent cramps.

I83.12 Varicose veins of left lower extremity with inflammation.
Thank You!

Questions?