Periprocedural Management of Antithrombotic Medications in Patients with Ischemic Cerebrovascular Disease

Case Presentation

A 65-year-old man with a history of hypertension and hypercholesterolemia presents to his neurologist for routine follow-up a year after a stroke attributed to intracranial large-artery atherosclerosis. His secondary stroke prevention therapy includes risk factor control and enteric-coated aspirin 325 mg daily. His 60-year-old cousin was recently diagnosed with colon cancer, and the patient is due for routine colonoscopy screening. The patient’s gastroenterologist told him to discuss how to manage the aspirin during the colonoscopy with his primary care physician and neurologist.

His medications include lisinopril, atorvastatin, and aspirin 325 mg daily.

He has no known drug allergies.

He quit smoking at the time of his stroke. He does not abuse alcohol or use illicit substances. He lives with his wife, and they have two adult children and one grandchild who also live in the area.

In addition to his cousin’s colon cancer diagnosis, the patient has a family history of myocardial infarction in his father at age 68. His mother died of breast cancer in her 70s. He has one living sibling (age 62) with hypertension. A 14-topic review of systems is performed and is remarkable for a 7-pound unintended weight gain, the recent finding of vitamin D deficiency on routine testing, improvement of his lipid panel since starting the atorvastatin, and no change in the left-side weakness since his stroke.

On physical exam, he is a well-developed and well-nourished male in no acute distress. He is afebrile. His blood pressure is 135/70, pulse is 75, and respiratory rate is 12.

No bruits are heard over his neck. There are no murmurs or abnormal heart sounds.

He is alert and oriented to person, place, and date. Registration and 5-minute recall are normal. He has no problems with drawing a cube or serial seven calculations. His speech is fluent, and he follows commands and names and repeats without difficulty.

Cranial nerve testing reveals PERRLA; optic discs are sharp, and visual fields are full to confrontation. Extraocular muscles are intact. Facial sensation is normal. He has a decreased
nasolabial fold on the left and has a slightly asymmetric smile with mild weakness of the left lower face. Strength of eye closure and eyebrow movements is normal bilaterally. Hearing is intact bilaterally to finger rub. Palate, tongue, and uvula are midline. Shoulder shrug strength and strength of turning the head against resistance are normal.

Motor strength is 5/5 in the right arm and leg. On the left, he has 4/5 strength diffusely in the left arm and 5/5 strength in the left leg, with spasticity appreciated more in the left arm.

He describes a patchy sense of decreased pinprick in the left arm. He has normal vibratory and joint position sense in the extremities. Romberg is negative.

Reflexes are 2/4 throughout the right side and left leg. The left triceps, biceps, and brachioradialis reflexes are 3/4. There is no clonus. Plantar responses are flexor on the right and extensor on the left.

Coordination is normal on finger–nose–finger and heel–knee–shin testing bilaterally. He has a normal gait except mild posturing of the left arm is observed while he is walking. He is able to walk on his toes and heels and perform tandem walking.

You review the American Academy of Neurology (AAN) guideline “Periprocedural management of antithrombotic medications in patients with ischemic cerebrovascular disease” and assess that the patient’s risk for recurrent stroke includes his known intracranial large-artery atherosclerotic event. Given that the patient may not need polypectomy with his colonoscopy, that the risk difference for bleeding with polypectomy associated with aspirin is approximately 2.0%, and that bleeding with polypectomy is likely to have lower morbidity risk than recurrent stroke risk, you recommend that aspirin be continued peri-colonoscopy. You discuss the risks and benefits of different approaches at length with the patient and ask him how he feels about the risk of recurrent stroke versus the risk of bleeding with the colonoscopy. The patient wants to have his colonoscopy, as his cousin was recently diagnosed with colon cancer, and is willing to accept an increased bleeding risk to avoid recurrent stroke. You spend 25 minutes for this established-patient visit, 15 of which are spent on coordination of care, education, and counseling regarding the importance of continuing to control vascular risk factors and the different approaches to aspirin use around the time of colonoscopy and the associated risks and benefits. You make the recommendation of continuing aspirin to the gastroenterologist, and she agrees to perform the procedure while the patient continues aspirin therapy.

Questions

1. Which of the following increases the risk of recurrent stroke?
   A. Recent stroke or transient ischemic attack
   B. Prior large-artery atherosclerotic stroke
   C. Atrial fibrillation
   D. Hypertension
   E. All of the above
The correct answer is E. Recurrent stroke risk may be higher in patients with recent stroke or TIA, prior large-artery atherosclerotic stroke, atrial fibrillation, hypertension, or both atrial fibrillation and hypertension.

2. Regarding the use of aspirin peri-colonoscopy with polypectomy, which of the following statements is correct?
A. There is strong evidence that there is minimal increase in clinically important bleeding with aspirin continuation during colonoscopy with or without polypectomy.
B. There is moderate evidence that there is minimal increase in clinically important bleeding with aspirin continuation during colonoscopy with or without polypectomy.
C. There is weak evidence that there is minimal increase in clinically important bleeding with aspirin continuation during colonoscopy with or without polypectomy.
D. There is not enough information to support or refute an increase in clinically important bleeding with aspirin continuation during colonoscopy with or without polypectomy.

The correct answer is C. Aspirin continuation might not increase clinically important bleeding in colonoscopic polypectomy. Given that the data supporting minimal clinically important bleeding risks with aspirin continuation for colonoscopic polypectomy are weak, it is reasonable that some stroke patients undergoing these procedures should possibly continue aspirin (Level C).

3. Regarding the use of aspirin and warfarin peri-dental procedure, which of the following statements is correct?
A. There is strong evidence that there is minimal increase in clinically important bleeding with aspirin or warfarin continuation during dental procedures.
B. There is moderate evidence that there is minimal increase in clinically important bleeding with aspirin or warfarin continuation during dental procedures.
C. There is weak evidence that there is minimal increase in clinically important bleeding with aspirin or warfarin continuation during dental procedures.
D. There is not enough information to support or refute an increase in clinically important bleeding with aspirin or warfarin continuation during dental procedures.

The correct answer is A. The recommendation to continue aspirin or warfarin prior to dental procedures given minimally increased bleeding risks is Level A for both agents. This is the strongest level of evidence within the AAN evidence classification system and suggests that in most circumstances, these antithrombotic agents should not be stopped prior to dental procedures.

Diagnosis Coding
What we know from this case report is that the patient had a “stroke attributed to intracranial large-artery atherosclerosis,” that there is residual left-sided weakness with spasticity, and that the main question is whether to temporarily discontinue aspirin. This documentation is fine for the purposes of this guideline discussion. In an actual patient record there should be a diagnostic statement or problem list (or both) that makes clear the provider’s current diagnosis to the highest level of specificity that the information allows. If the physician chooses the diagnosis code, this statement provides backup for that choice if an audit should occur. If a coder chooses
for the physician, this statement provides the information needed to choose the correct code. With the proliferation of audits, and with the basis of risk adjustment of populations being diagnosis coding, proper use of ICD-9-CM and ICD-10-CM coding becomes particularly important.

This patient’s stroke is a past event with residual manifestations. In ICD-9-CM the term *late effects* is given to these manifestations, and in ICD-10-CM the term is *sequelae*. In both classification systems, the causative condition of the late effect/sequelae is the second-listed (sequenced) code, and the manifestation is listed first. In the case of cerebrovascular disease, both ICD-9-CM and ICD-10-CM conveniently package the manifestation and the sequelae into one code. Both classification systems ask for information regarding the dominance of unilateral manifestations when applicable, information we do not have here. ICD-10-CM indicates both dominance and laterality in the sequelae of cerebrovascular disease codes.

The use of aspirin is significant to the discussion of care in this case. There is a “status” code in both ICD-9-CM and ICD-10-CM for long-term use of aspirin.

Given the information available, assuming that the original stroke was infarction and not hemorrhage, and also assuming a diagnostic statement or problem list was made with that information, the diagnosis codes are as follows:

**ICD-9-CM**

- 438.20 Late effects of cerebrovascular disease, hemiplegia/hemiparesis affecting unspecified side
- V58.66 Long-term use of aspirin

**ICD-10-CM**

- I69.359 Hemiplegia and hemiparesis following cerebral infarction affecting unspecified side
- Z79.82 Long-term use of aspirin

Note how the coding would change with the simple additional information that the left hemiparesis is nondominant:

**ICD-9-CM**

- 438.22 Late effects of cerebrovascular disease, hemiplegia/hemiparesis affecting non-dominant side
- V58.66 Long-term use of aspirin

**ICD-10-CM**

- I69.354 Hemiplegia and hemiparesis following cerebral infarction affecting left non-dominant side
- V58.66 Long-term use of aspirin

Not only does the simple addition of dominance change the code, but also there are morbidity implications in the more specific diagnosis that might add a higher risk adjustment for this patient in a population. That higher risk adjustment would affect future reimbursement as the health care system evolves away from traditional fee-for-service payments. Once again, the message here is to document well enough to convey all details necessary to justify the most specific coding possible.
Evaluation and Management CPT Coding

The details provided support the selection of the proper CPT® code. This is an outpatient visit for a patient who has been seen within the last 3 years (i.e., an established patient), so the proper code group would be 9921x. There is enough detail to allow a code choice based on the time-based—coordination of care — method or the bullet-based method. Either method leads to the choice of 99214. With regard to a time-based method, this patient meets the 99214 standard because 25 minutes were spent with the patient and over one-half of the time (in fact, 15 minutes) was spent with coordination of care activities. If these time elements are documented, along with a brief description of the items covered with coordination of care, then the note requires only the documentation needed for the proper management of the patient (which would include the chief complaint, review of medications and allergies, and other items that would be needed under meaningful use). When choosing the coordination of care (time-based) method for CPT® choice, a high-level history and physical exam elements are not required, but some elements are obviously important for best patient care. For bullet-based coding, the necessary minimal elements are needed to support level four for two of the three parts of the visit: history, physical, and medical decision making (MDM). The history obtained meets the level necessary for the choice of “detailed”; the elements of a comprehensive history are difficult to meet in this circumstance because only one medical problem is being addressed. The examination performed meets the requirements for a comprehensive exam. The MDM elements include a high-risk presenting problem (stroke), but no diagnostic procedures were ordered, and the management options are rather limited, especially given the evidenced-based guideline that drives the management decision. The level of MDM is determined by the lower of the highest two levels—which is moderate (elective surgery with risk factors), although one could argue that the treatment is not really about deciding about the surgery and risk factors but about whether to continue use of aspirin, an over-the-counter medication, thus lowering MDM from moderate to low. In order to submit a 99214 with history and examination as the two required elements, both elements must be at least detailed in nature. Given the nuances and subjective nature of auditing, it may be safer to select the code on the basis of the time element. The table below presents the CPT® code choice for established office visits.

Table. CPT® code choice for established office visits

<table>
<thead>
<tr>
<th>History</th>
<th>Exam</th>
<th>MDM</th>
<th>Time</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>---</td>
<td>Minimal or none</td>
<td>5</td>
<td>99211</td>
</tr>
<tr>
<td>Problem focused</td>
<td>Problem focused</td>
<td>Straightforward</td>
<td>10</td>
<td>99212</td>
</tr>
<tr>
<td>Expanded problem focused</td>
<td>Expanded problem focused</td>
<td>Low</td>
<td>15</td>
<td>99213</td>
</tr>
<tr>
<td>Detailed</td>
<td>Detailed</td>
<td>Moderate</td>
<td>25</td>
<td>99214</td>
</tr>
</tbody>
</table>
CPT = Current procedural terminology; MDM = Medical decision making.

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