Medical Coverage Policy | Wireless Pressure Sensors in Endovascular Aneurysm Repair

EFFECTIVE DATE: 09|03|2013
POLICY LAST UPDATED: 07|06|2015

OVERVIEW
Wireless sensors implanted in an aortic aneurysm sac after endovascular repair are being investigated to measure postprocedural pressure. It is thought that low pressures may correlate with positive prognoses, and high pressures may indicate the need for revision.

MEDICAL CRITERIA
Not applicable

PRIOR AUTHORIZATION
Not applicable

POLICY STATEMENT
BlueCHiP for Medicare and Commercial Products
Use of wireless pressure sensors is considered not medically necessary in the management (intraoperative and/or postoperative) of patients having endovascular aneurysm repair due to lack of medical literature to support its use.

COVERAGE
Benefits may vary. Please refer to the appropriate Evidence of Coverage, Subscriber Agreement, or Benefit Booklet for applicable not medically necessary benefits/coverage.

BACKGROUND
The goal of abdominal aortic aneurysm (AAA) repair is to reduce pressure in the aneurysm sac and thus prevent rupture. Failure to exclude the aneurysm completely from the systemic circulation results in continued pressurization. An endoleak (persistent perfusion of the aneurysmal sac) may be primary (within the first 30 days) or secondary (after 30 days). Endoleaks are reported to vary from 10% to 50% of cases, and there are 5 types of endoleaks.[1] Type I endoleaks result from ineffective fixation at either end of the graft; while these can seal spontaneously, risk of rupture is high and intervention is often indicated. Type II endoleaks result from retrograde filling of the aneurysm mainly from lumbar and/or inferior mesenteric arteries. Risk of rupture is less than with types I and III, and type II endoleaks can often be monitored when the aneurysm is shrinking. Type III endoleaks are caused by failure of the implanted graft and include development of holes, which need to be treated aggressively. Type IV endoleaks are caused by the porosity of the graft fabric. Type V endoleaks are referred to as endotension and correspond to continued aneurysm expansion in the absence of a confirmed endoleak. Endoleaks, particularly types I and III, lead to continued sac pressurization and therefore may be considered technical failures of endovascular aneurysm repair (EVAR).

The completeness of exclusion or absence of endoleaks is evaluated by intraoperative angiography. However, interpretation of images can be problematic, and it can also cause patient morbidity due to the dye load from repeated injections of contrast material. Direct measurement of sac pressure provides a physiologic assessment of success. Studies have used direct sac pressure measurements with a catheter; the drawback of this approach is the interference by the catheter during endovascular repair and the inability to leave it in place. Because endoleaks may also develop subsequent to the time of surgery, magnetic resonance imaging and ultrasound are used in monitoring the aneurysmal sac. Percutaneous catheter-based approaches can also

be used to measure intrasac pressures postoperatively. Several factors determine aneurysm sac pressure after EVAR. These include graft-related factors, such as endoleak, graft porosity, and graft compliance and anatomic factors, such as patency of aneurysm side branches, aneurysm morphology, and the characteristics of aneurysm thrombus.

Given this situation, wireless implantable pressure-sensing devices are being evaluated to monitor pressure in the aneurysm sac. These implanted devices use various mechanisms to wirelessly transmit pressure readings to devices for measuring and recording pressure. These devices have the potential to improve outcomes for patients who have had endovascular repair. They may change the need for or the frequency of monitoring of the aneurysm sac using contrast-enhanced computed tomography scans. They may improve postoperative monitoring. However, the accuracy of these devices must be determined, and potential benefits and risks must be considered and evaluated. At present, 2 types of systems are being evaluated: radiofrequency and ultrasound-based systems.

CODING

BlueCHiP for Medicare and Commercial products

The following codes are not medically necessary:

34806
93982

RELATED POLICIES

None

PUBLISHED

Provider Update, August 2015
Provider Update, November 2013
Provider Update, June 2011
Provider Update, August 2010
Provider Update, April 2009

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endovascular thoracic aneurysm repair. Ann Thorac Surg 2010; 89(2):446-52.

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