

EFFECTIVE DATE: 12/07/2010

POLICY LAST UPDATED: 1/27/2015

OVERVIEW

Scintimammography refers to the use of radiotracers with nuclear medicine imaging as a diagnostic tool for abnormalities of the breast. Breast-specific gamma imaging (BSGI), or molecular breast imaging (MBI), refers to specific types of imaging machines that are used in conjunction with scintimammography to improve diagnostic performance.

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

BlueCHiP for Medicare and Commercial:

Scintimammography or breast-specific gamma imaging is considered not medically necessary in all applications, including but not limited to its use as an adjunct to mammography or in staging the axillary lymph nodes as there is insufficient peer-reviewed scientific literature that demonstrates the procedure/service is effective.

MEDICAL CRITERIA

Not applicable.

BACKGROUND

Scintimammography is a diagnostic modality using radiopharmaceuticals to detect tumors of the breast. After injection of a radiopharmaceutical, the breast is evaluated with planar imaging. Scintimammography is performed with the patient lying prone and the camera positioned laterally, which increases the distance between the breast and the camera. Scintimammography using conventional imaging modalities has relatively poor sensitivity in detecting smaller lesions (e.g., smaller than 15 mm), because of the relatively poor resolution of conventional gamma cameras in imaging the breast. Breast-specific gamma imaging (BSGI) and molecular breast imaging (MBI) were developed to address this issue. Breast-specific gamma cameras acquire images while the patient is seated in a position similar to that in mammography, and the breast is lightly compressed. The detector head(s) is immediately next to the breast, increasing resolution, and the images can be compared with the mammographic images. Breast-specific gamma imaging and molecular breast imaging differ primarily in the type and number of detectors used (multi-crystal arrays of cesium iodide or sodium iodide versus semiconductor materials, such as cadmium zinc telluride, respectively). In some configurations, a detector is placed on each side of the breast and used to lightly compress it. The maximum distance between the detector and the breast is therefore from the surface to the midpoint of the breast. Much of the research on BSGI and MBI has been conducted at the Mayo Clinic. The radiotracer usually utilized is technetium Tc99m sestamibi. MBI imaging takes approximately 40 minutes. (1)

Breast-specific gamma imaging and molecular breast imaging have been suggested for a variety of applications. In practice guidelines for breast scintigraphy with breast-specific gamma cameras, the Society for Nuclear Medicine provides a list of common uses, as follows:

1. Among patients with recently detected breast malignancy, initial staging; detecting multicentric, multifocal, or bilateral disease; and assessing response to neoadjuvant chemotherapy.

2. Among patients at high risk for malignancy, evaluating suspected recurrence or using it when a mammogram is limited or a previous malignancy was occult on mammogram.
3. Among patients with indeterminate breast abnormalities and remaining diagnostic concerns, evaluating lesions identified by other breast imaging techniques, palpable or non-palpable, aiding in biopsy targeting, and a number of others.
4. Among patients with technically difficult breast imaging, such as radiodense breast tissue or implants, free silicone, or paraffin injections.
5. Among patients for whom breast magnetic resonance imaging (MRI) is indicated but contraindicated, e.g., patients with implanted pacemakers or pumps, or as an alternative for patients who meet MRI screening criteria, such as BRCA1, BRCA2 mutations.
6. Among patients undergoing preoperative chemotherapy, for monitoring tumor response in order to determine the impact of therapy of plan for residual disease.

The guideline also mentions other efforts, such as the American College of Radiology's Appropriateness Criteria and the American College of Surgeons' Consensus Conference III.

The evidence to date does not provide sufficient support for any of the uses discussed. The published literature on BSGI, MBI, and scintimammography with breast-specific gamma camera is limited by a number of factors. The studies include populations that usually do not represent those encountered in clinical practice and that have mixed indications. There are methodologic limitations in the available studies, which have been judged to have medium to high risk of bias, and they lack information on the impact on therapeutic efficacy. Limited evidence on the diagnostic accuracy of BSGI reports that the test has a relatively high sensitivity and specificity for detecting malignancy. However, the evidence does not establish that BSGI improves outcomes when used as an adjunct to mammography for breast cancer screening. In the available studies, the negative predictive value of BSGI has not been high enough to preclude biopsy in patients with inconclusive mammograms. The relatively high radiation dose also should be taken into account. In addition, the evidence is not sufficient to conclude that BSGI is better than MRI for this purpose. Larger, higher-quality studies are required to determine whether BSGI has a useful role as an adjunct to mammography. For these reasons, BSGI is considered not medically necessary as there is no proven efficacy.

COVERAGE

BlueCHiP for Medicare and Commercial:

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

CODING

Blue CHiP for Medicare and Commercial

BlueCHiP for Medicare and Commercial:

The following code is considered not medically necessary:

S8080 Scintimammography (radioimmunoscintigraphy of the breast), unilateral, including supply of radiopharmaceutical

RELATED POLICIES

None

PUBLISHED

Provider Update, Apr 2015
Provider Update, Jan 2014
Provider Update, March 2012
Provider Update, February 2011

REFERENCES

1. O'Connor M, Rhodes D, Hruska C. Molecular breast imaging. *Expert Rev Anticancer Ther* 2009; 9(8):1073-80.
2. Society for Nuclear Medicine (SNM). The SNM procedure guideline for breast scintigraphy with breast-specific gamma cameras 1.0. 2010. Available online at: http://interactive.snm.org/docs/BreastScintigraphyGuideline_V1.0.pdf. Last accessed October 2010.
3. American College of Radiology (ACR). Appropriateness criteria®: breast cancer screening, date of origin 2012. Available online at: <http://www.acr.org/Quality-Safety/Appropriateness-Criteria/Diagnostic>. Last accessed April 2014.
4. American College of Radiology (ACR). Appropriateness criteria®: palpable breast masses, last review date 2012. Available online at: <http://www.acr.org/Quality-Safety/Appropriateness-Criteria/Diagnostic/Breast-Imaging>. Last accessed April 2014.
5. American College of Radiology (ACR). Appropriateness criteria®: breast microcalcifications - initial diagnostic workup, last review date 2009. Available online at: <http://www.acr.org/Quality-Safety/Appropriateness-Criteria/Diagnostic/Breast-Imaging>.
6. Silverstein MJ, Recht A, Lagios MD et al. Image-detected breast cancer: state-of-the-art diagnosis and treatment. *J Am Coll Surg* 2009; 209(4):504-20.
7. Lantheus Medical Imaging. Cardiolite® kit for the preparation of technetium Tc99m sestamibi for injection, July 2010. Available online at: <http://www.cardiolite.com/healthcare-professionals/prescribing-info.asp>. Last accessed April 2014.
8. Hruska CB, O'Connor MK. Nuclear imaging of the breast: translating achievements in instrumentation into clinical use. *Med Phys* 2013; 40(5):050901.
9. Schillaci O, Spanu A, Danieli R et al. Molecular breast imaging with gamma emitters. *Q J Nucl Med Mol Imaging* 2013; 57(4):340-51.
10. GE Healthcare. Myoview™ kit for the preparation of technetium Tc99m tetrofosmin for injection, May 2011. Available online at: http://www3.gehealthcare.com/en/Products/Categories/Nuclear_Imaging_Agents/Myoview. Last accessed April 2014.
11. Rechtman LR, Lenihan MJ, Lieberman JH et al. Breast-specific gamma imaging for the detection of breast cancer in dense versus nondense breasts. *AJR Am J Roentgenol* 2014; 202(2):293-8.
Tan H, Jiang L, Gu Y et al. Visual and semi-quantitative analyses of dual-phase breast-specific gamma imaging with Tc-99m-sestamibi in detecting primary breast cancer. *Ann Nucl Med* 2014; 28(1):17-24.
12. Kim JS, Lee SM, Cha ES. The diagnostic sensitivity of dynamic contrast-enhanced magnetic resonance imaging and breast-specific gamma imaging in women with calcified and non-calcified DCIS. *Acta Radiol* 2013.
13. Bricou A, Duval MA, Charon Y et al. Mobile gamma cameras in breast cancer care - A review. *Eur J Surg Oncol* 2013.
14. Lee HS, Ko BS, Ahn SH et al. Diagnostic performance of breast-specific gamma imaging in the assessment of residual tumor after neoadjuvant chemotherapy in breast cancer patients. *Breast Cancer Res Treat* 2014.

15. Edwards C, Williams S, McSwain AP et al. Breast-specific gamma imaging influences surgical management in patients with breast cancer. *Breast J* 2013; 19(5):512-9.
14. Park KS, Chung HW, Yoo YB et al. Complementary role of semiquantitative analysis of breast-specific gamma imaging in the diagnosis of breast cancer. *AJR Am J Roentgenol* 2014; 202(3):690-5.
15. Hruska CB, Boughey JC, Phillips SW et al. Scientific Impact Recognition Award: Molecular breast imaging: a review of the Mayo Clinic experience. *Am J Surg* 2008; 196(4):470-6.
16. Hendrick RE. Radiation doses and cancer risks from breast imaging studies. *Radiology* 2010; 257(1):246-53.
17. Health risks from exposure to low levels of ionizing radiation: BEIR VII, Phase 2. Washington, DC: National Research Council of the National Academies Press; 2006. Available online at <http://www.nap.edu/openbook.php?isbn=030909156X>. Last accessed April 2013.
18. Brem RF, Fishman M, Rapelyea JA. Detection of ductal carcinoma in situ with mammography, breast specific gamma imaging, and magnetic resonance imaging: a comparative study. *Acad Radiol* 2007; 14(8):945-50.
19. Brem RF, Ioffe M, Rapelyea JA et al. Invasive lobular carcinoma: detection with mammography, sonography, MRI, and breast-specific gamma imaging. *AJR Am J Roentgenol* 2009; 192(2):379-83.



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