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NCCN Guidelines Panel: Breast Cancer

On behalf of the Society of Interventional Oncology, we respectfully request the NCCN Breast Cancer Guideline panel to review the enclosed data for inclusion of locoregional therapies for metastatic breast cancer.

First, we ask that the NCCN Breast Cancer panel include a radiologist or interventional radiologist on the panel. An exception may be necessary to achieve improved committee diversity/representation. As you

know, radiologists are an essential part of the care team of the breast cancer patient – as outlined in the NCCN breast cancer guidelines for patients. The knowledge and expertise of a radiologist would be essential in reviewing data regarding the role of imaging and image-guided intervention in breast cancer care. For example, on page 101 (PREG-1), the statement "CT scans and nuclear imaging are contraindicated in pregnancy" is incorrect. A chest radiograph is inadequate for staging, and this recommendation should be revised.

- Specific change: On page PREG-1, delete footnote "a. CT scans and nuclear imaging are contraindicated in pregnancy".
- Rationale: Breast cancer in pregnancy typically presents at a more advanced stage, which suggests accurate staging is important. CT and nuclear imaging are not absolutely contraindicated in pregnancy, and chest radiography is not sufficient staging. CT imaging of body parts outside of the pelvis, including the chest, result in minimal fetal radiation exposure.
- References

  1. Peccatori, Fedro Alessandro, et al. Biology, staging, and treatment of breast cancer during pregnancy: reassessing the evidences. Cancer Biology & Medicine 15.1 (2018): 6.
  2. Yoon, Ilsup, and Todd L. Slesinger. Radiation exposure in pregnancy. (2019).
  3. Bural, Gonca G., Charles M. Laymon, and James M. Mountz. Nuclear imaging of a pregnant patient: should we perform nuclear medicine procedures during pregnancy? Molecular imaging and radionuclide therapy 21.1 (2012): 1.

Second, we suggest adding image-guided cryoablation of primary breast cancer to the recommendations for treatment of non-metastatic (M0) invasive breast cancer.

- Specific change: Add a footnote to the algorithm for treating cT1–T3, ≥cN0, M0 on page BINV-1: "Image-guided cryoablation can be considered in patients with surgical comorbidities or in other high-risk patient groups, such as those with wound-healing issues, those with coagulopathies, those who cannot discontinue anticoagulation, or those who cannot safely receive anesthesia."
- Rationale: Recent high-quality prospective trials – the ACOSOG (Alliance) Z1072 trial and the Ice3 trials – have demonstrated the technical efficacy and safety of cryoablation, and a low local recurrence rate following cryoablation of invasive ductal cancer. Patients who are poor surgical candidates could benefit from minimally invasive cryoablation.
- References:

  1. Simmons RM, Ballman KV, Cox C, et al. A phase II trial exploring the success of cryoablation therapy in the treatment of invasive breast carcinoma: results from ACOSOG (Alliance) Z1072. Annals of surgical oncology 2016; 23:2438-2445
  2. Fine RE, Gilmore RC, Dietz JR, et al. Cryoablation without excision for low-risk early-stage breast cancer: 3-year interim analysis of ipsilateral breast tumor recurrence in the ICE3 trial. Annals of Surgical Oncology 2021; 28:5525-5534
  3. Ward, Robert C., Ana P. Lourenco, and Martha B. Mainiero. Ultrasound-guided breast cancer cryoablation. American Journal of Roentgenology 213.3 (2019): 716-722.

Third, we suggest FDG PET/CT be recommended for staging, due to its higher accuracy compared with conventional imaging.

- Specific changes: Remove the footnote uu from page BINV-12, and move FDG PET/CT up the list of additional tests to consider as clinically indicated to the top of the list. Modify the

parenthetical comment "(useful in certain circumstances)" to "(preferred for advanced disease and invasive ductal histology)".

- Rationale: FDG PET/CT is the most accurate image tool for staging breast cancer. Its clinical significance would optimally be highlighted by the NCCN guideline rather than downplayed.
- References:

1. Groheux D, Giacchetti S, Espié M, Vercellino L, Hamy AS, Delord M, Berenger N, Toubert ME, Misset JL, Hindié E: The yield of 18F-FDG PET/CT in patients with clinical stage IIA, IIB, or IIIA breast cancer: a prospective study. J Nucl Med 2011, 52:1526-1534.
2. Groheux D, Hindié E, Delord M, Giacchetti S, Hamy AS, de Bazelaire C, de Roquancourt A, Vercellino L, Toubert ME, Merlet P, Espié M: Prognostic impact of (18)FDG-PET-CT findings in clinical stage III and IIB breast cancer. J Natl Cancer Inst 2012, 104:1879-1887.
3. Cochet A, Dygai-Cochet I, Riedinger JM, Humbert O, Berriolo-Riedinger A, Toubeau M, Guiu S, Coutant C, Coudert B, Fumoleau P, Brunotte F: ^{18}F-FDG PET/CT provides powerful prognostic stratification in the primary staging of large breast cancer when compared with conventional explorations. Eur J Nucl Med Mol Imaging 2014, 41:428-437.
4. Ulaner GA, Castillo R, Goldman DA, Wills J, Riedl CC, Pinker-Domenig K, Jochelson MS, Gönen M: (18)F-FDG-PET/CT for systemic staging of newly diagnosed triple-negative breast cancer. Eur J Nucl Med Mol Imaging 2016, 43:1937-1944.
5. Ulaner GA, Castillo R, Wills J, Gönen M, Goldman DA: (18)F-FDG-PET/CT for systemic staging of patients with newly diagnosed ER-positive and HER2-positive breast cancer. Eur J Nucl Med Mol Imaging 2017, 44:1420-1427.
6. Lebon V, Alberini JL, Pierga JY, Diéras V, Jehanno N, Wartski M: Rate of Distant Metastases on 18F-FDG PET/CT at Initial Staging of Breast Cancer: Comparison of Women Younger and Older Than 40 Years. J Nucl Med 2017, 58:252-257.
7. Ko H, Baghdadi Y, Love C, Sparano JA: Clinical Utility of 18F-FDG PET/CT in Staging Localized Breast Cancer Before Initiating Preoperative Systemic Therapy. J Natl Compr Canc Netw 2020, 18:1240-1246.
8. Han S, Choi JY: Impact of 18F-FDG PET, PET/CT, and PET/MRI on Staging and Management as an Initial Staging Modality in Breast Cancer: A Systematic Review and Meta-analysis. Clinical nuclear medicine 2021, 46:271-282.

Respectfully submitted,

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