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The Mammi Breast Pet. A New Weapon for the Diagnosis of Breast Cancer.

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Editorial

Breast cancer is the most prominent form of cancer diagnosed and the leading cause of cancer death in European women [1]. The mortality has been reduced in the last decades due to the earlier detection and the improvements in treatment. On this early and accurate diagnosis the imaging tests have a main role.

In breast cancer, the addition of molecular imaging to conventional imaging modalities (mammography, ultrasound, MRI) has improved the tumor diagnosis and characterization. Whole-body PET has been confirmed as very valuable at multiples stages in breast cancer assessment (therapy response, staging and restaging). Although PET's sensivity, specifity, positive predictive value and negative predictive value in detecting primary breast cancer are all above 90%, multiple investigators report a reduced ability of whole-Body PET to detect small, well-differenciated in situ breast carcinoma (< 1cm). Because of this reason, several groups are working on dedicated breast imaging systems based on high resolution detectors that can be placed close to the breast [2]. The idea of these dedicated breast PETs is to provide a better spatial resolution and sensivity than WB-PET.

In our hospital we have already started to use one of these systems, the MAMmography with Molecular Imaging (MAMMI) PET. One of the main differences that provides a better resolution than the whole-body PET is the change in the patients position. Generally, the supine position is adequate for whole body imaging. However, in this position the breast is gravity compressed [2]. This can make it more difficult to discriminate tumor from uptake in surrounding normal glandular tissue [3]. Khalkali [4] reported that prone imaging is more favorable than supine imaging because of excellent separation of breast structures from the myocardium in the left breast and from the liver in the right breast. The MAMMI breast PET has been designed such that the patient lies down in prone position during the scan [2].

Although the scanner has been performed in a limited number of cases as part of a trial, the first results are encouraging. The system is easy to use and the exploration time is about 15 minutes. Moreover, we obtain whole breast 3D reconstruction of high quality. This fact, allow our pathologists to find easily in the surgical specimen the focus of high glucose metabolism that suggests malignant tumor. When the study finishes, we will able to correlate the areas of high activity in the MAMMI with the histopathological findings and assess this way if the breast dedicated PET is able to detect smaller and better differenciated tumors than the whole-body PET.

The role of the nuclear medicine in the tumoral pathology in our times is not questionable. The use of these new imaging tools maybe could complement or even improve the findings of the classical tests (mammography, ultrasound an MRI) but further RCT on this area are needed.

Reference

1. Garami Z, Hascsi Z, Varga J, Dinya T, Tany M, et al. (2012) The value of 18-FDG PET/CT in early stage breast cancer compared to traditional diagnostic modalitie with an emphasis on changes in disease stage designation and treatment plan. Eur J Surg Oncol 38: 31-37
2. Moliner L, Gonzalez AJ, Soriano A, Sanchez F, Correcher C, et al. (2012) Design and evaluation of the MAMMI dedicated breast PET. Med Phys 39: 5393-5404.
3. Heusner TA, Freudenberg LS, Kuehl H, Hauth EA, Veit-Haibach P, et al. (2014) Whole-body PET/CT-mammography for staging breast cancer: initial results. Br J Radiol 81: 743-748
4. Khalkhali I, Mena I, Diggles L (1994) Review of imaging techniques for the diagnosis of breast cancer: a new role of prone scintimammography using technetium-99m sestamibi. Eur J Nucl Med 21: 357-362