



Breast imaging in Spain

An interview with Dra. Marina Álvarez Benito, head of the Radiology Department of the Reina Sofia Hospital in Córdoba, Spain, and president of the Spanish Society of Breast Imaging (SEDIM).

European Society of Radiology: *Breast imaging is widely known for its role in the detection of breast cancer. Could you please briefly outline the advantages and disadvantages of the various modalities used in this regard?*

Marina Álvarez Benito: Currently the most widely used methods in breast cancer detection are mammography, ultrasound and breast MRI.

The indication for each one depends on the existence of clinical information, the age of the patient and their family history, and other risk factors for developing breast cancer.

Mammography is currently the most commonly used imaging method in the diagnosis of breast cancer, and the only accepted method for breast cancer screening. Its advantages are its availability, easy use, acceptance, sensitivity and specificity. Disadvantages are limited sensitivity and specificity in patients with dense breasts, and it involves ionising radiation. New developments such as tomosynthesis and 3D mammography have been shown in recent publications to improve the results of conventional mammography.

Ultrasound is a widely used method in the diagnosis of breast disease, especially in young or elderly patients, as an adjunct method to mammography. It is also used to guide interventional procedures. Among its advantages are, availability, absence of ionising radiation, comfort for the patient, and its sensitivity is not affected by breast density. Among its drawbacks or limitations we can state that it is time consuming, is operator dependent, has a high rate of false positives, and some forms of presentation of breast cancer as microcalcifications are difficult to detect by this method.

Use of breast MRI has increased in recent years. It is the most sensitive method for breast cancer diagnosis. Its limitations are its availability, the specific technological requirements for breast imaging, it is time consuming and it a low level of specificity, whereby lesions detected only by this method need to be biopsied to determine their nature.

ESR: *Early detection of breast cancer is the most important issue for reducing mortality, which is one reason for large-scale screening programmes. What kind of programmes are in place in your country and where do you see the advantages and possible disadvantages?*

MÁB: Breast cancer is the most common cancer in women, and most breast cancers occur in women with unknown risk factors. For this reason it cannot be avoided; there is no form of primary prevention. However, it has been shown that early detection and treatment (secondary prevention) is associated with better prognosis and increased survival, and it allows less aggressive treatment options, all of which has a very positive impact on patients' quality of life.

In Spain there is a population-based breast cancer screening programme, which varies since it is operated by the different autonomous communities. It is a programme that provides women with bilateral biennial mammography. Positive cases are assessed in specific units. As a whole, these programmes are paying off. In my opinion the most important limitations of this programme in Spain are the lack of expert breast radiologists involved in screening programmes, no demand of results as proposed in the European guidelines for quality control in mammography screening, and the failure to provide a good database that allows knowledge and exploitation of its results.

ESR: *Do you know how many women take part (percentage) in screening programmes in Spain? Do patients have to pay for this?*

MÁB: In Spain the participation in breast cancer screening programmes is between 70–80%. Women do not have to pay.

ESR: *The most common method for breast examination is mammography. When detecting a possible malignancy, which steps are taken next? Are other modalities used for confirmation?*

MÁB: In Spain there are several guidelines to guide the diagnostic process. When a possible malignant lesion is detected, it is usually confirmed by percutaneous biopsy and if the result is positive for malignancy it is complemented by other imaging methods, mainly breast and axillary ultrasound and breast MRI. Other imaging methods may be used depending on the stage of the disease.

ESR: *Diagnosing disease might be the best-known use of imaging, but how can imaging be employed in other stages of breast disease management?*

MÁB: Indeed, diagnosis is one of the best-known facets of breast imaging, both in healthy women as a screening method, and in women with symptoms to rule out or confirm pathology.

Breast imaging methods also have other indications such as:

- For histological confirmation allowing imaging assisted percutaneous biopsy
- To choose the most appropriate treatment for each patient
- To guide surgical treatment by placing harpoons etc.
- To check a surgical specimen
- For monitoring neoadjuvant chemotherapy

ESR: *What should patients keep in mind before undergoing an imaging exam? Do patients undergoing radiological exams generally experience any discomfort?*

MÁB: Women who are going to have a mammogram should be made aware of the risks of ionising radiation. They should avoid using creams on the day of the examination. They should be informed that sometimes it is necessary to complete the examination with other methods to confirm or rule out malignancy. To make a mammogram it is necessary to apply breast compression, but usually it is not painful. Proper communication on the part of the technician performing mammography is key to avoiding this discomfort.

ESR: *How do radiologists' interpretations help in reaching a diagnosis? What kind of safeguards help to avoid mistakes in image interpretation and ensure consistency?*

MÁB: To achieve good results in the interpretation of breast imaging methods should take into account certain aspects:

- They must be performed and interpreted by radiologists with special training in breast imaging.
- The best results are achieved when the same radiologist performs all the imaging examinations that are necessary in order to reach a definitive diagnosis of the patient.
- The radiologist should be part of an integrated multidisciplinary breast team.
- The breast radiologist must be experienced in the different methods used in breast diagnosis, including interventional procedures.
- They must have experience in diagnostic and screening mammography.
- It is important that the radiologist receives feedback about their results.

ESR: *When detecting a malignancy, how is the patient usually informed and by whom?*

MÁB: In our centre malignancy is usually confirmed with imaging assisted percutaneous biopsy. The radiologist transmits this information to the woman.

Depending on the chosen treatment, it is the radiologist who accompanies the patient to see the surgeon or oncologist. The breast imaging unit has a specific room where the radiologist talks to the patient.

ESR: *Some imaging technology, such as x-ray and CT, uses ionising radiation. How do the risks associated with radiation exposure compare with the benefits? How can patient safety be ensured when using these modalities?*

MÁB: Adaptation to established protocols is the key to the benefits outweighing the potential risks. It has to be ensured that ionising radiation is not used in pregnant women. The equipment has to be controlled according to regulations, and sensitive organs have to be protected.

ESR: *How aware are patients of the risks of radiation exposure? How do you address the issue with them?*

MÁB: In our area it is not a matter of particular concern to women. The rooms have information at the entrance with the precautions to take with ionising radiation. The technician checks before doing the mammogram that the woman is not pregnant. There are information leaflets for women about mammography which also include information relating to ionising radiation. If the technician decides the patient needs additional information, they alert the radiologist to talk to her.

ESR: *How much interaction do you usually have with your patients? Could this be improved and, if yes, how?*

MÁB: In my hospital, the radiologist is the first specialist who sees the patient. The radiologist directs the diagnostic process and will explain to the patient the results of the different tests. In addition it is intended that the same radiologist performs all the tests that are needed to reach a definitive diagnosis and interacts with the patient.

If percutaneous biopsy is positive for malignancy, the radiologist is the professional who gives the result to the patient. In this way the patient sees the radiologist as a professional involved in her case.

ESR: *How do you think breast imaging will evolve over the next decade and how will this change patient care? How involved are radiologists in these developments and what other physicians are involved in the process?*

MÁB: In recent years, innovations have been occurring in breast imaging: tomosynthesis, synthesised 2D image or contrast mammography, contrast ultrasound, elastography, new MRI contrast. These innovations will allow more accurate imaging studies and the adaptation of screening programmes and diagnostic processes for each type of patient. Moreover it will become increasingly necessary to have expert radiologists in breast imaging.

Dra. Marina Álvarez Benito specialised in radiology at the Galicia General Hospital (Santiago de Compostela), from 1988 to 1991. She obtained her doctorate in Medicine and Surgery at the University of Córdoba (1990). She has worked at the Reina Sofia Hospital in Córdoba since 1992 and since 1996 she has been dedicated to breast disease. Since 2002 she has been responsible for the breast cancer process at this centre. She has been Head of the Radiology Department of the Reina Sofia Hospital since 2009. In addition, she has been a radiologist adviser of the Andalusia Early Detection Breast Cancer Screening Program since 2002, and a member of the reference Breast Cancer Process Group in Andalusia.

She has participated in numerous conferences and scientific meetings, organising and presenting papers and communications.

She has directed four doctoral theses related to breast imaging at the University of Cordoba and is the author of several publications and breast imaging guides.

She has been president of the Spanish Society of Breast Imaging (SEDIM) since June 2009.

