MRI検査で発見された乳房病変の特徴付け

新たな統計学的モデルは乳房生検の減少に役立つ

New statistical model could help reduce breast-lesion biopsies

MRI検査により発見された乳房病変を特徴付ける新たな方法は良性腫瘍の生検を減少させる可能性がある、とRadiological Society of North America（RSNA）学会で発表された。研究者らは、乳房病変の診断に生検が必要か否かを決定する際に考慮した患者および病変の特徴を調査した。528人の患者の857病変（悪性155病変、良性702病変）が対象となった。悪性病変と最も関連のあった特徴は、washout kinetics対persistent kinetics、および臨床上の新たながん病変の徴候対ハイリスクスクリーニングであった。また、年齢（50歳以上対50歳未満）、サイズ（10mm以上対10mm未満）および病変のタイプ（mass対focus）も有意に関連があった。MRI上、悪性の可能性（PM）が最も高いのはwashoutの認められる10mm以上の病変であった（PM41.1%）。一方、がん発症のリスクが高いためスクリーニングをされた女性に発見された病変のうち、小さく（10mm未満）時間とともに造影が増強するものは良性の可能性が非常に高かった。この統計学的モデルが一般臨床で使用できることが実証されるまでにはさらなる研究が必要である。

Full Text

A new method of characterizing breast lesions found during an MRI exam could result in fewer biopsies of benign tumors with the benefits of reduced pain and expense for patients and providers, according to a paper presented at the annual meeting of the Radiological Society of North America (RSNA).

Wendy DeMartini, M.D., and colleagues in the breast imaging department at the Seattle Cancer Care Alliance (SCCA) developed a preliminary statistical model that breast radiologists could use eventually when deciding whether a lesion found on breast MRI is likely to be malignant or benign. Their retrospective review of almost 2,600 breast MRI exams performed during a four-year period at the SCCA found three crucial patient and lesion characteristics that, when used in combination, could predict the likelihood of malignancy, including identifying some lesions with probabilities of cancer close to zero.

Such a model, if confirmed by more research, could be beneficial because MRI exams are so sensitive that they reveal cancerous and non-cancerous lesions that often look alike and behave similarly when contrast dye is injected into the patient. Biopsy is often necessary to determine whether a lesion is cancerous. Statistical models may improve the ability to distinguish between such lesions and avoid unnecessary biopsies.

The researchers looked at several patient and lesion characteristics that are considered when deciding whether a biopsy is required for diagnosis.

857 lesions (155 malignant, 702 benign) were identified in 528 patients. Features most strongly associated with malignancy were washout versus persistent kinetics and clinical indication of new cancer versus high-risk screening. Also significant were age (> 50 years versus <50), size (> 10 mm versus <10) and lesion type (mass versus focus).

The highest predicted probability of malignancy (PM) was for lesions on MRI for new cancer, measuring > 10 mm with washout (PM 41.1%). In contrast, breast lesions found in women being screened because they are considered to be at high risk for developing cancer, that were found to be small lesions (<10 mm) and increased their enhancement over time were very likely to benign.

"If the lesions had those three characteristics, the likelihood of malignancy was 1 percent," said DeMartini. "This is so close to zeros that rather than doing a biopsy we could instead follow the patient by doing another MRI in a few months, or we may not need to do any additional testing." DeMartini cautioned that more research is needed before this statistical model can be validated for use as standard practice.

"This is a preliminary model. Future work will look at additional patient and lesion features and in the longer term we need to examine lesions from multiple practice sites," she said. "Our goal is to identify a group of lesions that we currently recommend for additional tests where the likelihood of cancer is so low that we can safely avoid additional testing."

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