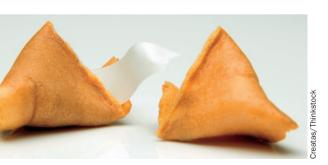PROSTATE CANCER

Multiparametric MRI is better than a nomogram for predicting high-risk disease

New research published in *Cancer* provides further evidence in favour of multiparametric (mp)MRI as a tool for the prediction of clinically significant prostate cancer. Previously, the use of MRI-guided biopsy has been shown to reduce detection of low-risk cancer compared with transrectal ultrasonography (TRUS) biopsy, and now the results of Salami *et al.* have shown that the use of mpMRI to select patients with suspicious lesions for biopsy can identify more men with clinically significant disease than the Prostate Cancer Prevention Trial risk calculator for high-grade disease (PCPTHG).

PSA screening has led to increased detection of prostate cancer, but the pendulum has now begun to swing back, with the concern that selecting patients for biopsy on the basis of PSA alone is leading to overdiagnosis of low-risk cancer, and subsequent overtreatment for little clinical benefit. Attention has now turned to the development of improved screening tools, including nomograms, such as the PCPTHG, which combines multiple clinical variables (age, race, digital rectal examination [DRE], PSA and previous biopsy). In addition, mpMRI enables direct visualization of prostate cancer lesions *in situ*. Comparison of the available screening methods must be regularly attempted, to ensure maximal detection of high-risk disease, and minimal overtreatment of low-risk cancer.

In this context, Salami *et al.* used mpMRI to examine the prostates of 775 men with abnormal DREs or PSA >4 ng/ml. Review of mpMRI images by three radiologists identified 401 men with lesions suspicious for cancer. Of these men, 151 were not referred by their primary urologists for study evaluation, and 75 did not meet the inclusion criteria, so 175 proceeded to analysis with MRI–TRUS fusion-guided biopsy followed by standard, TRUS-guided 12-core biopsy. The incidence of cancer in the 374 men with abnormal DRE or PSA but nonindicative mpMRI was not determined.

Overall, biopsy identified 113 men with prostate cancer, including 93 with clinically significant disease (Gleason score ≥7 or Gleason score 6 with lesion >0.2 cm³) and 83 with high-grade disease (Gleason score ≥7). Cancer-detection rates were 52.6% with fusion-guided biopsy and 49.7% with TRUS-guided biopsy. Area under the receiver operating characteristic curve (AUC) values of 0.769 and 0.812 for prediction of high-risk and clinically significant disease, respectively, by mpMRI compared favourably with prediction of high-risk disease by PCPTHG (AUC 0.676). Furthermore, with the PCPTHG, the risk cutoff for determining the need for biopsy can be adjusted, and using a higher cutoff within suggested limits was seen to exclude patients suggested by mpMRI who were found to have clinically significant disease.

"The advantage of mpMRI as a diagnostic strategy is that it can help identify those who require treatment," says Simpa Salami, corresponding author of the *Cancer* article. Whether mpMRI retains an advantage in the future over improved nomograms and newly developed molecular screening techniques remains to be seen.

Robert Phillips

❝The advantage of mpMRI ... is that it can help identify those who require treatment❞

Creatas/Thinkstock

Original article Salami, S. S. *et al*. Multiparametric magnetic resonance imaging outperforms the Prostate Cancer Prevention Trial risk calculator in predicting clinically significant prostate cancer. *Cancer* doi:10.1002/cncr.28790