

## ➔ PROSTATE CANCER

**Glycolysis and AR expression as biomarkers**

Assessing androgen receptor (AR) expression and glycolytic activity using PET–CT imaging could be useful for predicting the prognosis of patients with metastatic castration-resistant prostate cancer (CRPC), say researchers.

Josef Fox and co-workers enrolled 133 patients with progressive metastatic CRPC to undergo dual PET–CT imaging using  $^{18}\text{F}$ -fluorodeoxyglucose ( $^{18}\text{F}$ -FDG) as an indicator of tumour glycolysis and  $^{18}\text{F}$ -fluorodihydrotestosterone ( $^{18}\text{F}$ -FDHT) as an indicator of AR expression.

The researchers classified lesions as being positive or negative for  $^{18}\text{F}$ -FDG uptake (noted as Glyc<sub>1</sub> and Glyc<sub>0</sub>, respectively) and positive or negative for  $^{18}\text{F}$ -FDHT uptake (noted as AR<sub>1</sub> and AR<sub>0</sub>, respectively). They identified three lesion phenotypes: AR<sub>1</sub>Glyc<sub>1</sub>, AR<sub>1</sub>Glyc<sub>0</sub>, and AR<sub>0</sub>Glyc<sub>1</sub>. Using multivariate analysis, they demonstrated that each of these three lesion phenotypes showed an independent negative correlation with survival. Each additional AR<sub>0</sub>Glyc<sub>1</sub> lesion was associated with an 11% increase in the risk of death, each additional AR<sub>1</sub>Glyc<sub>1</sub> lesion was associated with a 5% increase in the risk of death, and each additional AR<sub>1</sub>Glyc<sub>0</sub> lesion was associated with a 3% increase in the risk of death.

Survival was significantly worse in patients with at least 12 metabolizing lesions (the median number) than in patients with fewer than 12 lesions (HR 3.01;  $P < 0.001$ ). Using biopsy findings from 50 patients, Fox *et al.* also showed that  $^{18}\text{F}$ -FDHT positivity (AR<sub>1</sub>) was a highly specific marker for histological findings of prostate cancer. They say that future studies could investigate whether particular lesion subtypes are correlated with treatment response.

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**ORIGINAL ARTICLE** Fox, J. J. *et al.* Positron emission tomography/computed tomography-based assessments of androgen receptor expression and glycolytic activity as a prognostic biomarker for metastatic castration-resistant prostate cancer. *JAMA Oncol.* <http://dx.doi.org/10.1001/jamaoncol.2017.3588> (2017)