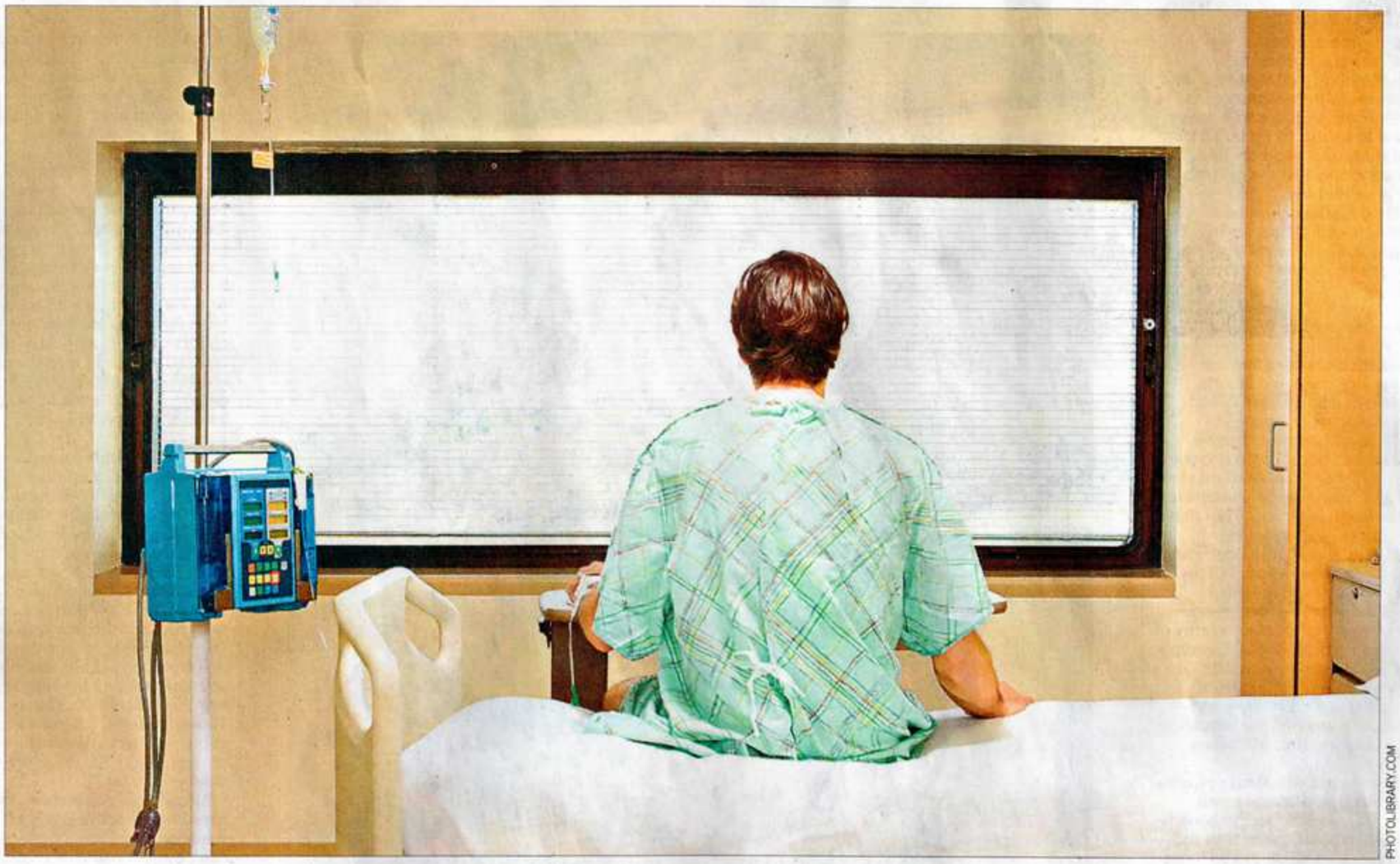
More of a test, less of a trial

The use of powerful MRI scans could herald a revolution in the diagnosis of prostate cancer, says ***Roland Grant***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It's the most common cancer in men, a quarter of a million of whom live with the disease in Britain alone. Now medical specialists say that using MRI scans to detect prostate cancer might save many men from unnecessary biopsies – and vastly improve the way this deadly disease is diagnosed.

Traditional biopsies involve inserting a needle through the rectum to obtain samples of prostate tissue. Now, on the eve of a major clinical trial to find the best way of diagnosing the disease, experts say that this method may be leading to over-diagnosis and unnecessary surgery, as well as missing some cancers.

Medical researchers have started recruiting more than 500 men with suspected prostate cancer to take part in a trial to show whether non-invasive MRI scanning can be safely used to reduce the number of men having invasive biopsies. The £3 million government-funded Promis (Prostate MRI Imaging Study) trial will be based at several major cancer centres in Britain.

"We're looking at whether a man can safely avoid a biopsy if his MRI scan proves negative," says Richard Hindley, a consultant urological surgeon at Basingstoke and North Hampshire hospital who is involved in the trial. Specialists increasingly realise, he says, that the traditional biopsy method can lead to misdiagnosis, whether by picking up on tiny "insignificant" cancers – or by missing a tumour entirely. "There are parts of the prostate where the needle cannot reach so biopsy results can be misleading," he says. Also, because it is done through the rectum, this type of biopsy has a 2 to 3 per cent risk of infection, with a handful of men dying of septicaemia following the procedure each year.

Experts say that thanks to the availability of the PSA blood test, which measures the amount of a protein in the blood produced by prostate cells, there has been a dramatic increase in prostate cancer diagnoses over the past 20 years, with about 35,000 men now diagnosed annually. At present, men with a raised PSA are advised to have a transrectal ultrasound (TRUS) guided biopsy, a painful and invasive procedure, usually done under local anaesthetic, in which a needle is guided through the walls of the rectum into the prostate gland to take samples from different parts of the prostate. An estimated 200,000 such biopsies are performed in Britain annually.

But experts taking part in the Promis trial point out that most men undergoing a biopsy will not have prostate cancer, but another condition that raises PSA levels instead (such as enlarged prostate). Traditional biopsies can also miss cancers in some areas of the prostate while picking up on tiny traces of cancer that may be so slow-growing as to be harmless. As a result, many men decide to have their prostate gland surgically removed, when this may be unnecessary. The side-effects of such surgery can include incontinence and erectile dysfunction.

At the moment MRIs are usually only recommended as a secondary measure after biopsy, to find out whether the cancer has spread beyond the prostate. However, the latest scanners, which produce far more powerful magnetic fields than in the past, can generate an accurate, detailed image of the prostate and make it easier to identify the size, position and aggressiveness of the cancer.

Poor outlook: traditional biopsies can lead to misdiagnosis and unnecessary surgery

Mr Hindley believes that high quality MRI scans performed before biopsies could also help differentiate between aggressive and "insignificant" cancers. The dangerous cancers tend to be larger and more aggressive while areas of cancer too small to be seen on MRI are unlikely to be serious.

But, he adds, "if a man does have a cancer and definitely needs a biopsy, a detailed scan will allow us to target the actual tumour more accurately to give the best possible information about its size, place and seriousness".

MRI scans could also prove useful for men with low or medium-risk cancers undergoing "active surveillance" (being kept under observation rather than having active treatment). At the moment these patients may need regular biopsies to determine the progress of the cancer, when a painless MRI scan could be a way of monitoring them non-invasively.

Research at the Royal Marsden Hospital, London has shown that a type of MRI scan called diffusion-weighted MRI, which measures the movement of water in prostate tissue, can distinguish between low- and high-risk tumours.

"Diffusion-weighted MRI has a lot of potential for monitoring patients under active surveillance as the scans quite clearly showed which cancers were progressing," says Prof Nandita deSouza of the Institute of Cancer Research, who led the Marsden study.

"The technique could, one day, save men under active surveillance from the discomfort and potential complications of regular biopsies."

Mr Hindley says the use of MRI scans may also save the NHS millions. "By making sure that fewer aggressive tumours are missed in the early stages, it would also allow more men to have appropriate treatment and reduce the likelihood of complications and death from prostate cancer. This trial is hugely important."

More details of the Promis trial can be found at www.ctu.mrc.ac.uk