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Cardiovascular and interventional news plus the latest in women's health

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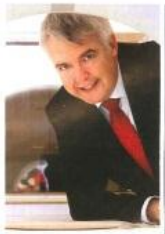

First Minister Jones opens Swansea MRI

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ECR 2012

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College of Radiographers president-elect Pam Black, centre, joins Jane Grimsley and Charlie McCaffrey of Carestream Health UK to check out the MyVue patient portal.

Patients return to help launch cancer centre

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Second cath lab meets Worthing's greater workload

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North west trusts migrate 250m images

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Pioneers in zero-field MRI hope to see earlier stages of disease

Scientists at the University of Aberdeen are developing an MRI technique that takes the field in the scanner, including the Earth's magnetic field, very close to zero to see disease-related changes in tissue that cannot be seen by conventional MRI. It is hoped that zero-field MRI (ZF-MRI) will also reveal biomarkers that might help pharmaceutical companies develop new drugs for neurodegenerative diseases such as Parkinson's and Alzheimer's, as well diseases such as cancer and osteoarthritis.

Leading the project is medical physicist Professor David Lurie, who said: "There is an urgent need for new drugs that could be used earlier to slow disease progression and one of the major barriers to that is the difficulty of early diagnosis of disease.

"In the case of Parkinson's, for example, the disease is diagnosed purely from clinical symptoms because imaging methods are not available to detect early changes in the brain before symptoms actually develop."

Co-investigators radiologist Professor Alison Murray and neurologist Dr Carl Counsell explained further: "Various dopaminergic ligands do exist that can demonstrate nigrostriatal degeneration on SPECT/PET but these changes are relatively insensitive and therefore appear later in the disease, ie requiring 50 per cent or more of the nerves to have been lost. We know that by the time of clinical presentation about 80 per cent of nerves may have been lost. We would hope detection of abnormal protein accumulation may be more sensitive in early disease."

Dr Lionel Broche, research fellow at the university, said: "From the early days of MRI it has been known that the contrast that can be seen between normal and diseased tissue is greater at lower magnetic fields. This is because of the way in which molecules move around in tissues, altering the signals that are detected and used to form the detailed MRI pictures.

"At low magnetic fields the speed of the molecular motion is more closely matched to the frequency of the MRI signals, making the

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Retired Bolton Wanderers player Fabrice Muamba was a guest of honour at the opening of Burton Hospitals' cardiac unit in February. He was joined by Davina Emmerson, representative of a family that left a legacy to the hospital. Muamba has a special interest in heart health, following his dramatic on-pitch collapse following a cardiac arrest. *See page 6 for the full story.*

Pioneers in zero-field MRI hope to see earlier stages of disease

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technique more sensitive to changes. ZF-MRI should provide us with exquisite sensitivity to subtle changes in brain tissue, bringing the possibility of early diagnosis."

Although SNR is higher at high fields, it is known that the relaxation times of tissues (especially T1) tend to converge at high field, so there is inherently more disease related T1-based contrast available at low field.

Studies of tissue samples have revealed that the way in which T1 changes as a function of field strength is different for different tissues and can also be a marker of disease. Therefore the pattern of a graph of T1 versus field strength is likely to be altered by disease and could be used for diagnosis.

Standard MRI scanners cannot measure T1 as a function of field strength because each scanner can only operate at its own native field strength. During the last six years the team at Aberdeen have been working on a method called fast field-cycling MRI (FFC-MRI), designing and building prototype scanners than can rapidly change magnetic field while the sample or patient is in the scanner. Using this method it is possible to make measurements and images at a wide range of field strengths.

ZF-MRI is a development of FFC-MRI in which the magnetic field is set to zero during part of the imaging pulse sequence. The idea is that at zero field the 'internal' magnetic fields of molecules themselves will dominate, and will not be masked by environmental magnetic fields (or by the field of the scanner itself). After the period at zero field, the magnetic field is switched back on so that the NMR signals can be read out and used to form images, the contrast of which will depend on the interactions that took place at zero field.

Professor Lurie said: "At the moment, our focus is on neurodegenerative diseases, but ZF-MRI has the potential to be used in a range of other diseases such as cancer, osteoarthritis, fibrosis and thrombosis. We have already made a start on studying these conditions using our existing FFC-MRI scanners."

Professor Lurie leads a research team at Aberdeen University

Another aspect of the research is to look at the feasibility of producing technology that might add FFC-MRI capability to some types of clinical MRI scanner, potentially providing an upgrade route for existing scanners.

The team has been awarded £979,000 from the Engineering and Physical Sciences Research Council with work to span three years. Researchers in medical physics, radiology, neuroscience and neurology will first modify the FFC-MRI scanner to allow zero-field measurements to be carried out after which they plan to scan objects such as bottles containing protein gels to mimic normal and diseased tissues. Towards the end of the study the team hope to be able to image some patients with neurodegenerative diseases.

More information can be found at www.ffc-mri.org

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North west trusts migrate 250m images ready for PACS overhaul

Pukka-j has carried out the migration of 250 million PACS images on behalf of four NHS trusts located in the north west of England.

The commissions from Royal Liverpool and Broadgreen University Hospitals NHS Trust, St Helens and Knowsley NHS Trust, Aintree University Hospitals NHS Foundation Trust, and the Liverpool Heart and Chest Hospital NHS Foundation Trust were separate projects but the end goal was the same. The trusts employed Pukka-j to localise PACS images from a local and central data store provided by the existing PACS local service provider (LSP).

The trend in PACS localisation is a result of LSP contracts expiring in June 2013. For trusts wishing to implement a replacement PACS with a new provider, Pukka-j says it is a sensible approach for PACS data to be migrated from the existing system and held in one place to enable the trust to be data owner and controller, prior to a new PACS being implemented.

Pukka-j technical director Kevin Wilson.

Technical director Kevin Wilson said: "Every migration is unique, however, with the LSP solutions in place we were faced with the added complexity of data being flushed from the trusts' local PACS and residing in a remote central data store.

"Our solutions coped well with the challenge, completing the projects in a timely fashion, while ensuring the migration process had no impact on the live PACS environment. Until an existing PACS is no longer in use, Pukka-j performs a regular synchronisation process to guarantee recently acquired images and imported images with historic dates in PACS are continually localised to the Pukka-j environment."

Pukka-j is also to provide VNA, technical consultation, bespoke software and integration services.

INQUIRY REF 454039

NEC aids transition to 10-bit LED colour displays

NEC Display Solutions Europe has launched the NEC MD211C2, the first LED backlit colour model of its MD series of medical grade displays, aimed at aiding the transition of primary diagnostic systems to 10-bit colour displays.

The medical market is shifting from greyscale to colour displays for diagnostics, as well as from classical CCFL to lower power consuming and mercury-free LED backlights, says the company. NEC aims to support this transition with the launch of the MD211C2, a 2MP flat panel display for primary diagnosis of PACS colour and greyscale digital images. Applications include diagnostics in radiography as well as CT, MRI, PET and other medical imaging modalities.

With a 21.3" screen the 1200 x 1600 pixel display features UA-SFT (IPS) technology for stable viewing performance. A combination of LED backlighting, human sensor technology and significantly smaller in-built calibration front sensor and ambient light sensor are said to deliver top quality performance at lower energy levels in a functional design.

NEC's Quick Screen QA feature allows easy PC-independent quality assurance testing. This also allows for re-calibration of the integrated front sensor and ambient light sensor according to the international IEC 62563-1 and new DIN 6868-157 standards.

The MD211C2 integrates into the GammaCompMD QA software suite that performs routine display configuration and ensures consistent image quality, either locally or over the network through the optional GammaCompMD QA Server.

INQUIRY REF 454045