The study was published online in July. Smoking and non-obese respondents thought it a good/excellent idea. However, 41–44% of participants thought paying patients for their personal self control to improve health, many large employers to reduce health costs as well as gain wider acceptance.

The programme for this year’s European Health Forum Gastein (EHFG) – its 10th gathering – covers a far broader range of topics than before. During over 20 plenary sessions, forums and workshops, with about 120 lectures, key topics that embrace European and the national health politics of EU member states will be presented and discussed by experts to be included:

- European on the way to a standardised healthcare market? The new EU guideline on patient rights and trans-national healthcare.
- More coordination and integration: Modern information technology improves the care of the chronically ill.
- Increased patient safety and improvement in the quality of care as central challenges for healthcare in the 21st century.
- Why social and economic disparities can prevent better health for all and what can be done against this?
- The responsibilities of positions in the healthcare profession in a changing healthcare environment.
- Smoking bans, food labelling and alcohol: How may prevention and EU initiatives can prevent the development of diseases at an earlier stage.
- Rare diseases and orphan drugs: EU measures help to improve the healthcare for people with rare diseases.
- Health and innovations – biotechnologies, new vaccines and their financing.
- What can we do against this?
- Weighing scales
- Russian pages
- Neurology
- Ultrasound
- IT & telemed
- News & management
- 2-7 Management
- Migrant patients and staff
- Cultural attitudes and care
- Education and training
- 1st tele-ultrasound via satellite
- Scots test telemetry system
- IC-1 in the Netherlands

UK – Although outbreaks of nosocomial infections, e.g. Clostridium difficile and MRSA, have dropped by almost a third since last year, and many hygiene measures have been initiated and improved, there are now proposals for an even more stringent measure to control the possibility that National Health Service (NHS) Trust hospitals that break hygiene regulations could be fined up to £50,000 in the future. In addition, inspectors may also be empowered to close unhygienic wards or clinics.

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The hygiene code covers infection control, documentation and cleanliness. However, recent data has revealed that, although there has been a considerable improvement in hygiene standards in hospitals, about 25% of NHS Trusts, which govern their area hospitals, have failed to meet at least one of these standards.

These are part of new measures that come under the new Care Quality Commission (CQC), which will replace the Healthcare Commission, the current NHS supervisory body, in 2009. As well as regulating hospitals, the CQC will become responsible for overseeing general practitioners’ (GP) surgeries, care homes, and private facilities, all currently regulated by several different organisations.

The maximum fine of £50,000 would be issued for the most serious offences, e.g. not carrying out advised improvements after an infection outbreak. The proposals also include fixed penalty notices with fines up to £4,000, issued against Trusts that do not meet minimum hygiene standards. Further, if a Trust obstructs a CQC inspector, or fails to provide documents or data, it could be fined £1,250.

Although these draft measures, which will further govern hygiene control, have met with opposition, they are now under consideration.

See page 2: Advice on MRSA control
Pioneering software to protect patients’ privacy

Information in patients’ records could benefit biomedical research in understanding diseases and their treatments. The drawback is that those records contain confidential information that could identify patients. If that data has to be removed manually, the task is not only painstaking and therefore expensive, but also not foolproof.

Now a computer programme that can automatically delete confidential data from medical records, yet leave their vital medical information intact, has been developed by researchers at the Massachusetts Institute of Technology (MIT). ‘We’ve developed a free and open-source software package to allow researchers to accurately and identically test in medical records,’ explained Gari D Clifford, a principal research scientist in the Harvard-MIT Division of Health Sciences and Technology (HST) who led the research.

Principal Investigator Professor Roger G Mark, of HST and MIT’s Department of Electrical Engineering and Computer Science.

To test the new software, the researchers used it on 1,836 nursing notes (containing 216,400 words). Using multiple pre-defined and additional algorithms, they replaced all personal data with ‘fake’ information. They report that the software successfully deleted over 94% of the confidential information, but only 0.2% of the medical content was wrongly deleted. ‘This is significantly better than one expert working alone, at least as good as two trained medical professionals checking each other’s work and many, many times faster than either,’ they pointed out.

The free, open-source software package (labelled de-identified data together with the software) will enable other researchers to improve their systems and allow adaptation of the software to other data types with different qualities.

According to Dr Zohehra Cohen, programme director at the National Institute of Biomedical Imaging and Bioengineering, sponsor of the work, the information in journal articles is a ‘largely untapped treasure trove’ that the biomedical research community could use to increase understanding of diseases and their treatments. ‘The automated de-identification system developed under the guidance of Dr Mark is a big step forward in permitting the widespread sharing of patient information without the risk of compromised privacy and confidentiality,’ he pointed out.

* This research was published in Journal of Medical Informatics and Decision Making (24/7/08).

Nautilus LIMS used in Hunt Biobank population study

Hunt Biobank, Norway’s largest research biobank, is using Thermo Fisher Scientific Inc’s Nautilus LIMS in its HUNT study, to gather, store, manage, track and retrieve the biological data of approximately 100,000 people from Nord-Trøndelag County.

HUNT Biobank studies provide insight into disease status and progression, particularly in relation to quality of life measures such as environment, education and occupation.

Spanning almost 25 years, HUNT Biobank now represents an integrated family and personal database. The HUNT 3 study, part of one of the largest population-based health studies ever performed, incorporates over 130 sub-studies, including status in subjective health, diabetes, lung, cardiovascular, thyroid, muscle and skeletal diseases, mental diseases, prostate complaints, urinary incontinence, female reproductive disorders and gynaecological diseases.

Initiated to support epidemiological, clinical and preventative medical research, it is due for completion this June.

The Nautilus LIMS interfaces with the laboratory’s existing robotics, import files from the hospital laboratory, and then return results for every participant.

Worldwide first robot-assisted vascular surgery for aneurysm

The Vascular Unit at St Mary’s Hospital, part of Imperial College Healthcare Trust, is a leading European centre for endovascular treatment with the largest number of endovascular thoraco-abdominal aneurysm repairs worldwide. The Imperial College Endovascular Group has undertaken pioneering work in the field of endovascular robotics.

The Group won the 1st prize (scientific session) from the British Society of Endovascular Therapy in July 2008 (Riga C, Bicknell CD, Hamadly M, Cheshire MW). A similar robot to the Sensei is being used by the Trust to treat arrhythmias in cardiovascular patients.

* Robert details: www.huntbiomedical.com
UK Polyclinic proposals meet opposition

The relationship between England's GPs and hospitals is currently at a sensitive stage, with a review of health services across the country set to impact on the way the two groups work and liaise with one another.

The issue has been brought into focus by the review of healthcare in England by health minister Lord Darzi. While the proposals are wide-reaching, one of the higher profile areas is the creation of GP-led health centres, or 'polyclinics'. Lord Darzi, a surgeon, initially proposed these under a review of London's healthcare, but now wants a separate network of 150 GP-led health centres across England.

Polyclinics (common in Central and Eastern Europe), or 'super-surgeries', provide a wide range of medical services and are staffed by teams of GPs, dentists, nurses, midwives, therapists and hospital doctors offering X-rays, blood tests and diagnostic tests.

Ministers claim polyclinics will improve patient care by offering a wider range of treatments and staying open from 8am to 8pm daily. They say the clinics will be able to offer quick appointments and reduce waiting times for diagnostic tests that are currently only provided in hospital.

Doctors' leaders and patient groups fear polyclinics will end the personal relationship between a patient and their general practitioner (GP). Additionally, the British Medical Association, which represents doctors, claims some existing GPs will be forced out of business.

However, a Department of Health spokeswoman said: 'We are not imposing super-surgeries or polyclinics, or replacing existing services. The 150 health centres will complement existing GP practices and serve as an extra way to see a doctor.'

The King's Fund, the healthcare think tank organisation, warns that the proposal could backfire if GPs and other healthcare staff end up being concentrated in a single building and make it more difficult for patients to visit their GP, especially those living in rural areas.

Similarly, NHS consultants have raised doubts about the merits of polyclinics. In a BMA poll, which received 1,587 responses, 60% either disagreed or strongly disagreed that polyclinics would improve patient care, and 42% were not convinced they would improve access to treatment. More than 70% said they would destabilise hospitals and GP practices.

Under England's current system, hospitals are paid per patient treated and there is a growing concern that, if polyclinics take the simple cases, they may deprive hospital trust of income. Dr Chaand Nagpaul, a London GP and a negotiator with the BMA GP committee, said the problem with the plans for polyclinics and GP-led health centres is that they are something of an unknown quantity and the details of how they would operate are not clear. 'It is also unclear how GPs and hospital doctors will work together through the polyclinic proposals and what the financial transactions of the partnership will be,' he added. 'We need more details from the government on this before we really know.'

The matter is the latest in a series of issues that have brought UK GPs into conflict with the government. Recently, the BMA led opposition to plans to extend the opening hours of surgeries into evenings and weekends. Other proposals in Lord Darzi's report include hospitals publishing death rates for various conditions; the old and terminally ill have the right to choose to die at home instead of in hospital; greater scope for private health care firms to supply primary care services, and a new NHS constitution that will enshrine rights to confidentiality, control of patient records and a second opinion.

Report: Mark Nicholls
and insurers are in Pennsylvania set out to assess the two university-based programs to quit smoking, lose weight, hypertensive control their idea. How thought pay idea. lose weight, respiratory Smokers and obese patients were more distance by the public establishing the value of P4P program. The researchers conclude introducing P4P.

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The needs of migrant patients

By Heidi Heinhold

In hospitals all over the world people of very diverse cultural backgrounds come together, whether as employees in various roles, or as patients. This means that hospital teams must deal with diverse needs, cultures and languages.

In 1961, Virginia Henderson in the US determined the 15 basic human needs in her Theory of Basic Principles of Nursing Care. These are internationally acknowledged as the lowest common denominator for patient care. Nurses are responsible for the basic needs of patients, which include rest and sleep, cleanliness and personal hygiene, the expression of emotions, distress, and their fear or feelings about dealing with others.

Transcultural nursing care

About 10 years ago Renate Pförtner-Hüttner*, then a nurse at the Nuremberg Hospital, examined the situation regarding foreign hospital patients as part of her Professional Care training course.

● Expectations: It transpired that these patients did not expect or demand that the staff should know much about their cultures – expectations were very low. Patients from Eastern Europe and Turkey consciously tried to assimilate into the daily life on the wards without any problems.

● Religious needs: Patients accept a hospital’s particular organisation and adapt their individual needs to those expectations. However, Muslim patients did state that they missed a room where they could carry out their religious rituals, particularly cleansing before prayer, which should always be carried out with running water. This, however, is not possible for bedridden patients. There is one comfort – Islam permits making up for missed prayers at a later time.

● Religious diet: Patients were not worried about something as obvious as mistakenly being served pork. However, they were concerned about whether, in a large hospital kitchen, there was sufficient avoidance of foods, particularly cleansing before prayer, to avoid possible contamination.

● Language barriers: There were fewer than assumed and these mostly occurred among Muslim women whose lives were focused around their families and who only communicated in their mother tongue.

● The generation gap: Muslim patients of the so-called first generation were a lot less forthcoming with their wishes and demands than those of the second generation. Younger patients were very well informed about their rights and opportunities in a hospital.

To summarise: It could be said that foreign patients acknowledge the singular situation they are in and so put their individual needs on hold.

Are foreign patients ill in a different way?

Twenty years ago the German Red Cross examined this question in their project: Older migrants – the promotion of social commitment by younger people to help older foreign fellow citizens in Germany.

62.1% of men and women polled stated that they felt sick rather than healthy, whereas 37.9% reported that they felt their current physical state was good. The most common complaints were headaches, back and joint pains, circulatory problems, cardiac trouble, nervousness and other ailments, such as bronchial infections and ulcers (in stomach, duodenum, which can have psychosomatic elements).

Working practices in western industrial nations, e.g. working in large scale industries, industrial production, shift work etc. were identified as contributors to the development of illnesses. These practices are very different to the way that people had previously worked in their own countries, where they may have been agricultural workers, craftsmen or traders, leading to premature deterioration of health, high occurrence of sickness, increasing numbers retiring early due to ill health, occupational diseases and problems after occupational accidents.

Conclusion: In- and out-patient nurses cannot solve the issues alone. Apart from voluntary training, they need professional support from reliable individuals who mediate between the hospital and the patients. Many problems are unlikely to be solved, particularly as inpatient stays are increasingly shorter; for other problems that occur consistently and repeatedly (e.g. the need for a room for religious rituals) in time there will be a solution acceptable to all.

*Source: Pförtner-Hüttner, Renate: Study on the care of foreign patients: How important are cultural differences. Pflegezeitschrift 1/99 59-61, Kohlhammer, Stuttgart
**Muslims and healthcare in the United Kingdom**

By Brenda Marsh

A new Turkish patient is admitted. What would almost any nurse think? ‘The whole family will always be there’, says health economist Fatemeh Pohl-Shirazi. ‘In Muslim cultures illness makes someone the centre of attention and the whole family wants to show compassion – which unavoidably changes normal hospital routine. The patient’s room will always be full, with visitors coming and going, and visiting times often re-interpreted. They will also bring food for the patient.’ Here she outlines a few significant cultural differences between doctors and patients of any faith.

**Islamic garments**

Fatemeh Pohl-Shirazi, a German/Iranian, gained her PhD in Lebanon and has worked as a nurse in Lebanon, London and in the Middle East. She pointed out that the ‘culturally appropriate’ dress of a patient is important. The physician should expect to face coverings in the operating theatre and to dress appropriately for his or her colleagues – as well as patients. It was said that regulation of surgical masks is not facial covering in the operating theatres. Headscarves worn as part of religious observance were to be accepted.

Religious observers were to be respected. A recent Department of Health guideline stipulates that all doctors must be ‘culturally sensitive’ to help prevent infections. Various hospitals have received objections from Muslim women patients who do not wish to remove arm coverings – although in the operating theatre they will roll them up to their elbows when hand washing.

In times of hygiene, this is given as an example of the problem: ‘From a Muslim one university hospital reported that some students they would rather give up their studies than bare their arms. Nonetheless, the Islamic Medical Association insisted: ‘No practitioners should be shown to Muslim colleagues. Should a patient request it, we are keen to accommodate all faiths, for example if a patient is Roman Catholic then we would try and ensure they can receive Holy Communion.

However, researchers have said it would be far better to create Muslim-only wards, with all beds facing Mecca and a special prayer corner. So patients can work nurses with this extra task. To accommodate patients, the Scottish NHS issued a guidance which, during Ramadan, ‘consideration’ should be shown to Muslim colleagues and patients. Food should not be eaten in front of them, and food trolleys kept away.

In Britain, although male infant circumcision is not approved by the General Medical Council, there is no law to prevent it. Among other things it observes gender differences, supplying female or male specialists according to a patient’s gender. The doctors show only their hands: female doctors wear headscarves or hijabs. In the prayer room a screen separates men from women. Halal food is served.

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LEADERSHIP TOOLS FOR HEALTHCARE MANAGERS

Strong leadership is vital for healthcare management. 'Operationalisation' of leadership is necessary in order to learn, apply and evaluate leadership in healthcare facilities contexts, says Dr Eduardo de la Sota Guimón. But how is this best achieved? Although various authors suggest methods to attain effective leadership, their approaches are not always uniform. Here he reviews some of the literature.

The Leadership Strategies for Evolving Health Care Executives Programme (Harvard University, 2008) focuses on leadership skills essential for achieving individual and organisational objectives. Interestingly, the programme highlights the importance of effective problem-solving strategies. Dr Guimón mentions the need to learn how to successfully implement your agenda during organisational change. Evaluate, diagnose, and build a high-performance team. Attainment of this requires the implementation of management controls in order to effectively bring about organisational change to reality.

Learn improving operational performance. Balance organisational interests with those of professional staff, patients, and community.

Position and brand your services and products to prevent them from being turned into a commodity.

Learn legal and ethical responsibilities.

Dr Guimón says, "It is vital that healthcare managers understand their duties and responsibilities in their roles. They must be aware of the implications of their decisions, both in terms of their individual and organisational responsibilities. This is especially important in the healthcare sector, where decisions can have a significant impact on patient outcomes."
Ethical concerns over clinical trials in India

As an increasing number of international drug companies are moving their clinical trials business to India, the clinical trial industry has been raising concerns about the lack of regulation of private trials conducted there, including the uneven application of requirements for informed consent and proper ethics review.

There is now a new urgency for the reform of clinical trials registry in the subcontinent.

Dr Ambujan Nair Kapoor, a senior scientist of the Indian Council of Medical Research (ICMR), stated: ‘Unless we put in place systems that ensure safety of patients and good quality of trials, people will get away with whatever they can get away with.’

ICMR, a national body responsible for the formulation, coordination and promotion of biomedical research, is striving to do just that with the Clinical Trials Registry of India, which was launched in July last year.

This encourages the registration of all clinical trials conducted in India before the enrolment of the first participant. Dr Kapoor, who added that the Registry is meant to bring transparency to clinical trials conducted in India, is very aware of the shortcomings of current trial publication practices, including a tendency to publish trial results only when they are positive: ‘Trials done earlier, where the drug has not been found to be effective, are sometimes not published,’ she said, adding that information about failures should also be put in a publicly searchable database.

Working with the Indian Journal of Medical Research, early this year the Clinical Trial Registry also brought together the editors of 12 Indian biomedical journals to develop policy covering the publication of clinical trials. The editors issued a statement in April urging all those conducting and/or planning to conduct clinical trials involving human subjects to register their trials in the Clinical Trials Registry or any other primary clinical trial register. From January 2010 these journals will consider publication of a trial started in or after June 2008 only if it has been previously registered.

‘We are wearing down the resistance [to registration],’ says Dr Prathap Tharyan, professor of psychiatry at the Christian Medical College, Vellore, India. Tharyan is the coordinator of the South Asian Cochrane Network, and a member of the Scientific Advisory Group of the WHO International Clinical Trials Registry Platform (ICTRP) and of the steering group of the Clinical Trials Registry.

The latest developments in India reflect a concerted effort on the part of the global public health community to push clinical trials issues to the fore in the wake of several high-profile cases in which pharmaceutical companies were shown to withhold information from regulators.

In September 2004, for example, the members of the International Committee of Medical Journal Editors (ICMJE) published a joint editorial promoting registration of all clinical trials. The ICMJE stated that, from 1 July 2005, only registered trials would be eligible for journal publication. In 2007 the ICMJE stated that it would consider a trial for publication if it had been registered in any World Health Organisation Primary Registry.

The WHO’s involvement in clinical trial registration began in October 2003 with consultations with different stakeholders to identify a potential basis for collaboration to address complex issues related to trial registration and reporting. This culminated in the establishment of the ICTRP Secretariat, which began operations in August 2005. It is committed to harmonising standards within which trials registers and databases worldwide can operate in a coordinated fashion, providing a global trial identification and search capability, and promoting compliance.

The WHO bulletin in August, go to: www.who.int/trials/bulletin/volumes/08/05/trials050508.pdf

By 2010 India could capture clinical trials business of around US$ 1 billion, up from US$ 200 million in 2007, making the subcontinent one of the world’s preferred destinations for clinical trials.

Researchers funded by the European Union have devised OptoLabCard, a system that prepares samples and performs DNA tests on bacteria in a portable, easily used, cost-effective lab-on-a-chip.

Within three years, this work will lead to commercially available hand-held devices that detect bacteria in the food chain and diseases as diverse as cancer, hepatitis, AIDS and flu within 20–30 minutes, replicating laboratory processes anywhere at any time.

OptoLabCards could also be used to identify pathogens and pollution in water supplies, says Dr Jesús M Ruano- López, coordinator of the OptoLabCard project at the IKERLAN Technology research centre, Arrasate, Spain.

Integration of POCT into the clinical laboratory

Unlike regular laboratory analyses, which is performed by clinical pathologists and technicians in the clinical laboratory, Point of Care Testing (POCT) are devices to perform laboratory analyses in the vicinity of the patient by the attending physician or nurses.

POCT is essential in all hospitals, either due to the instability of the analytes (e.g. in blood gas analysis) or the necessity of immediate reporting (e.g. glucose testing to adjust insulin doses) and the very demanding logistics for the alternative, i.e. testing samples in the laboratory. This has led to the development of several devices specially designed for POCT. Not only is the location different for POCT, but the levels of analytical expertise in the ward and the ease of testing are also different.

In general, POCT devices analyse unprocessed samples (e.g. whole blood) and can be run by personnel with only limited training. The devices automatically check the integrity of the analytical procedure and the necessary pre-analytical steps (replacing centrifugation for the separation of blood cells from serum/plasma) are generally performed within the devices.

POCT carries several challenges: the immediate medical response to the results, and the tests in terms of medical analysis by a layperson, demand supervision by analytical experts. In Germany, for example, supervision by the central laboratory is mandated by law and DIN EN ISO 22870 describes in detail the optimal organisation of POCT.

The decentralised testing makes this supervision very demanding: a typical 800-bed hospital has about 50 patient sites for glucose testing and about 10 for blood gases; large university hospitals may have several hundred sites in which to perform POCT. The high volume of POCT analyses — in general, about 50-100 tests are performed annually per hospital bed — and the widespread use of electronic patient records (EPRs) should

Professional Manufacturer For Medical Diagnostic Imaging Equipment Distributor wanted


The OptoLabCard

Spanish researchers develop a new lab-on-a-chip for 20–30 minute tests. David Loshak reports

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Laboratory Outsourcing: What next?

By Mary Black

A quiet revolution is occurring in clinical laboratory services. In any business, if shops are not cost centres, and cost centres can be moved around, services outsourced, amalgamated, contracted out. Globally, diagnostics and laboratory outsourcing are following the already trodden path of information technology. Two types of work are involved in the move overseas – diagnostics and pathology testing, and clinical trials/research.

There are three ways of handling the sample materials themselves:
- Clinical materials can be sent overseas for direct testing.
- Photomicrographs of lab tests can be sent for review and reporting by experts. Time zone differences can be used to advantage, with reports sent overnight to be picked up on the next business day.
- Testing diagnostic services can be sent overseas (as in clinical trials) and laboratory services simply followed.

This really is big business. 20 years ago, in the USA diagnostics was a highly fragmented industry. It is now annually a $50 billion industry, with 50% coming from the top five chains. This pattern is replicating across the world and chains of consolidated super labs, providing services that are becoming well established in Europe. The next business trend will be transnational outsourcing. National health services and individual hospitals are dipping their toes in the market, attracted by costs that may be considerably lower than a local laboratory. The use of telepathology services is increasing in Europe and the US, but also in countries such as West Asia, Sri Lanka, Africa, Nepal and Bangladesh. Metropolis, a market leader in diagnostic services nationally in India, also provides hospital laboratory management services with labs in the Middle East and South-East Asian countries, including Thailand, Indonesia and Vietnam. They process more than 10 million sample tests in their global chain annually, but only 1.0% is classed as outsourcing. This is set to rise.

Clinical Research outsourcing has moved faster, driven by lower costs and access to clinical subjects. An estimated 30 Global Clinical Research Outsourcing (CRO) companies are involved in India alone.

Dr Umakanta Sahoo, a managing director of the global CRO firm Chiltern International, expects the Indian market to hit the $1.1-1.5 billion mark by 2010. Most of their work comes from Europe (70-80%) and the remainder from the US (almost 20%).

New concerns are arising out of this outsourcing shift, including how to deal with patient confidentiality, regulatory barriers, and an ongoing debate on quality and the minimisation of reporting errors. These have been ongoing concerns for laboratory services for years: the difference now is that debate crosses not just national but international boundaries. We can predict that lower prices alone will not drive the industry, but that quality will come to the fore. Public awareness of laboratory outsourcing is still low, but as the industry develops, patient and other advocacy groups will enter the debate.

Update: UniCel integrated systems

This summer, California-based Beckman Coulter Inc. began general distribution of its UniCel DxI 800 immunodiagnostic analyser and UniCel DxI 800 clinical chemistry system, planning to connect them with the Benchmark-Coulter five-in-one generation closed tube aliquotter (UniCel CTA) to form the DxI 880i.

Scott Garrett, the firm’s Chair- man and CEO, explained: ‘The company’s technological achievement with the DxI 880i has been to devise a way to integrate the testing process by running chemistry and immunoassay tests in parallel and to do this without removing sample caps and exposing the blood to contamination,’ explained Garrett, ‘a very unusual situation from Coulter Europe’s new clinical diagnostics marketing director. ‘Since it was announced in March this year, Europe Lab 2007, customers have ordered the individual elements, the UniCel DxI 800 immunodiagnostic analyser and UniCel DxI 800 clinical chemistry system, planning to connect them with the Benchmark-Coulter five-in-one generation closed tube aliquotter (UniCel CTA) to form the DxI 880i.’

Products

Meeting those needs. Market analysis today tells us that integrated systems are the fastest-growing segment of the chemistry system sales.’ He followed this with announce- ments that included the launch of three more integrated systems by the end of 2008 – the UniCel DxI 880i; DxI 660i and DxI 680i.

Molecular diagnostics

Unveiling plans for expansion into the US $2.1 billion molecular diagnostics market with the launch of a random access analyser; the UniCel DxI, Scott Garrett explained: ‘Molecular diagnostics is one of the most important technological advancements in clinical diagnostics, but it currently operates outside the core laboratory. We will use our expertise in laboratory instrument design and our diverse intellectual property portfolio to develop a ‘sample-to-result’ system that meets the needs of the core laboratory.’

Market expansions

Talking about the growth in health care infrastructure investment in emerging markets, he said: ‘This is one of the key factors for growth of the entire industry.’

The firm has made significant investment in our operations outside the United States to take advantage of this trend. For example, in India, we established a direct sales office. And growth in China continues in the double digits as we invest in our operations there.’

The group’s former EMEA (Europe, Middle East, Africa and India) region has been split into two: Europe (Western); and Emerging Markets (covering Eastern Europe, Eastern Meditteranean, Africa, Russia, the Middle East and India). Both operations are still managed from the group’s European headquaters in Nyon, on Lake Geneva. The office continues in the double digit growth.

Pre-eclampsia markers

The company is also focusing on prenatal testing; prostate cancer; anaemia; reproductive endocrinology and in terms of pre-eclampsia, for which currently there is no diagnostic test, the company is working on the development of two markers to help diagnose the condition. Roche reports that, using its NimbleGen CGH arrays, researchers have identified a recurrent reciprocal genomic rearrangement of chromosome 17q12 in foetal samples with congenital anomalies that is also associated with paediatric renal disease and epilepsy. ‘The results emphasize the importance of evaluating de novo structural variation events in paediatric kidney disease,’ Roche points out.

Genomic disorders result from nonallelic homologous recombination (NABH) between low-copy repeat regions of the genome and occur in approximately 1 in 1,000 live births. The phenotypes of many of these known genomic disorders include developmental delay and mental retardation. Therefore, screening for novel genomic disorders has largely focused on patients with cognitive disability and/or peripheral nervous system defects. Previous studies reported on the development and use of a BAC-based microarray targeting 190 ‘rearrangement hotspots’, defined as regions of the genome with an...
to detect genomic disorder

architecture suggestive of a susceptibility to recurrent microdeletions and duplications. Employing this array, novel genomic disorders associated with mental retardation and developmental delay (MB/DID) were discovered. Surprisingly, many of the predicted 130 hotspot regions have never been associated with copy number variants in either apparently normal individuals or patients with MB/DID.

To address the hypothesis that genomic rearrangements mediated by many of these regions affect gene pathways other than those involved in MB/DID, and to broaden the spectrum of diseases caused by genomic disorders, H C Mefford and colleagues analysed DNA samples from prenatal autopsy specimens from 155 foetuses with one or more congenital anomalies, no known cytogenetic anomalies, and detailed pathology data were analysed by BAC-array CGH. According to the data, nine individuals (6 %) showed evidence of microdeletion or microduplication and eight were identified with potentially pathogenic deletions or duplications. Fine-mapping using a custom oligonucleotide array (NimbleGen, 385K, average probe spacing 53 bp) revealed that three of the individual harbour microdeletions with breakpoints mapping to flanking segmental duplications. One foetus with bilateral multicystic dysplastic kidneys contained a deletion region of 1.8 Mb at 17q12 that involves 19 known genes. Mutations in one of these genes, TC2P2, has been shown to cause maturity-onset diabetes of the young type 5 (MODY5) and both paediatric and prenatally detectable cystic renal disease. In one study, one third of MODY5-affected individuals showed deletion of the entire TC2P2 gene and surrounding sequence. Five patients with paediatric renal disease without diabetes and three patients with MODY5 previously shown to have deletions encompassing the TC2P2 gene were analysed using a custom oligonucleotide array (NimbleGen, 385K, average probe spacing 53 bp). Four of five paediatric and all three of the MODY5 patients showed microdeletions nearly identical to the foetal case. In addition, Roche NimbleGen custom fine-tiling array CGH was used to identify the reciprocal microduplication in patients with mild-to-moderate mental retardation, epilepsy, and focal cortical dysplasia.

In summary, the analysis revealed novel microdeletions and duplications in a series of foetal samples with congenital anomalies other than mental retardation. The 17q12 deletion in the first genomic disorder identified that results in diabetes and the identification of this recurrent microdeletion will have a significant impact on diagnosis, prognosis, and management of renal disease and early-onset type II diabetes in children. Therefore, the evaluation of this microdeletion should be considered early in the diagnostic workup for children with renal pathology. In addition, the authors advocate generalised screening of genomic hotspot regions of both parents and offspring for other paediatric diseases for which the genetic aetiology is not well understood, including schizophrenia, asthma, and cardiovascular disease.

* Mefford HC et al.: Recurrent reciprocal genomic rearrangements of 17q12 are associated with renal disease, diabetes, and epilepsy Am J Hum Genet 2007; 81: 1057-1069
The world’s first installation of Cisco’s telemetry system HealthPresence has been completed at Aberdeen Royal Infirmary in Scotland. The system combines video, audio and call centre technology with medical information in a high-security network. By integrating the video conferencing solution TelePresence it allows a virtual face-to-face conversation although physician and patient may be miles apart,’ Cisco explains. HealthPresence interfaces with diagnostic equipment such as stethoscopes, otoscopes and to a monitor that displays blood pressure, temperature, pulse rate and pulse oxymetry. An attendant operates the equipment at the patient site and monitors it.

In partnership with the Scottish Centre for Telehealth and the National Health Service Scotland, Cisco has been live testing, since earlier in the year, the efficacy of the solution as well as patient and caregiver satisfaction. Further international tests are planned.

Telemetry delivers healthcare to even the most remote areas, bringing with it the value of distant medical specialist involvement in a case. The system can be installed in an office building, community centre, hotel or school, also bringing easier access to the elderly.

A satellite link is envisaged that will make the IT platform the ideal partner for short-term use, for example in disaster areas or during the outbreak of epidemics.

**FEATURES**

- Based on Cisco TelePresence and a secure networking infrastructure.
- Combines state-of-the-art video technology with physiological data captured by an array of medical devices.
- Can be located anywhere there is broadband access; integration with satellite communications is expected in the future.
- Based on industry-leading audio and video technology offering high-definition images.
- Supported by attendants.
- Can be integrated with Electronic Medical Records (EMRs) and can access other hosted services.
- Will be integrated with IP-based call centre technology.

**BENEFITS**

- Enables access to care anywhere, anytime.
- Can be configured to deliver primary care, specialty care, and chronic care management services.
- Facilitates new care delivery models, extending the service delivery area. Uses an IP communications platform; clinical providers can be co-located or distributed; can be serviced from call centres, medical offices, hospitals, and clinics.
- Provides better and more convenient access to healthcare.
- Can be placed in retail and office locations, schools, industrial parks, planned communities – anywhere services are not easily accessible.
- Patients can access remote specialists without travelling.
- Replicates the in-person experience for both patient and provider, with life-size images and no voice delay.
- Does not require expensive health personnel.
- Assures a safe and pleasant experience for patients.
- EMRs used over a secure network provide the best enabling technology for continuity of care and efficient care delivery.
- Optimises use of scarce clinical resources
- Can organise resources by region, type, specialty, gender, or any other organising principle
ultrasound via satellite

Robot Estele probes onboard ship and transmits images to France

France – The first robotised tele-ultrasound examination has been performed by participants in the European Mobile And Robotised Tele-echography (MARTE) project, in collaboration with Robosoft, specialist in the development and production of service robot systems.

Using Robosoft’s Estele, a tele-operated robotic system, an expert clinician can perform remote echographic diagnosis as if to be in the same room as the patient.

The system is based on a 3 kg, 4-axis ultrasound Probe Holder Robot, which can be positioned on a patient by any on-the-spot medical assistant, is controlled by the distant specialist at the Remote Master Controller. Via the bi-directional ‘visio’ conferencing system, the specialist receives the ultrasound images and can see and communicate with the patient.

Several robots equipped with preliminary versions of the robuBOX have already been deployed: Estele, the tele-ultrasound robot; robuCAB, an autonomous GPS-guided vehicle, and general-purpose mobile platforms such as the robuLAB10 for domestic help or the robuROC for security and military applications.

Beyond professional applications, Robosoft believes the era of personal robotics is approaching fast and that its service robots, called robuters, will be part of everyday life within five years (i.e. they will not only be utilised for amusement, education, culture and healthcare, but also for assistance for the elderly and handicapped, etc.)

To bring these applications to life, Robosoft already integrates 80% of programming complexity into the robuBOX, a modular programme using the Microsoft Robotics Developer Studio. Although robuBOX is incorporated into the heart of Robosoft robots, it can also be licensed to robotics integrators and manufacturers for mass production.

According to the Japan Robotics Association’s predictions, the world market for service and personal robotics will reach 17 billion dollars by 2010.

Details: www.robosoft.com

Communication can be via ISDN (known as RNS in France) or a specific communication link, such as satellite, as used in this the first tele-ultrasound examination of a patient who was on the ship Saphire, owned by Cyprus-based Louis Cruise Lines.

Researchers at PRISME – a new multidisciplinary research institute that includes some 170 university researchers, engineers, technicians and doctoral students at several locations (Bourges, Orleans, Chartres, Châteauroux, Paris) – initially spent a month becoming familiar with the software in the Estele robot, which is entirely controlled by the robuBOX, a universal robotics engine adapted for the growing service robots market. The team then developed and implemented software for internet communication via satellite between the Remote Master Controller in France and the remote Probe Holder Robot on the ship, which was sailing in the Mediterranean.

These kinds of projects show the soundness of the generic approach used in the robuBOX,' said Vincent Dupourqué, CEO of Robosoft. ‘The standard tele-ultrasound robot was originally delivered for use in a classic video-conferencing system over phone lines. Thanks to the robuBOX development toolkit, included with the standard robot, a customer can add his own functionalities, and can also integrate the robot into a larger system.’

For the project the PRISME Institute team adapted Estele’s software using Microsoft Robotics Developer Studio (see http://www.microsoft.com/robotics)
The Dutch E-health initiatives have made remarkable progress in recent years, writes Marcel Swennens, President of TopicsCareHealth. Many solutions, such as online medication services, patient portals and web-based disease management initiatives, demonstrate the success of the country’s EHR approach.

The Dutch follow both a top-down as well as a bottom-up approach. On the one hand, work is being done to establish a countrywide infrastructure (called AQRTA) including elements such as an electronic healthcare provider card, a countrywide patient registry, security standards and legislation for one unique countrywide patient ID.

In parallel, local and regional initiatives have resulted in many implementations of solutions. Local software companies, e.g. TopicsCareHealth, were involved in these initiatives from the start. TopicsCare was instrumental in the overall architecture and technology solutions for the leading EHR regions. Solutions were deployed varying from an electronic medication service (showing all of a patient’s medication), a web service for weekends/nobodies in duty (allowing them to access a specific view to the patient’s record during out-of-office hours), and integrated solutions for disease management such as diabetes. Web-based patient portals have been introduced, allowing patients to schedule appointments, re-order medication and have e-consultations. A web-based referral service has been introduced, allowing referring physicians to create and manage their referrals. This shows availability, waiting times, etc. It also allows hospitals and clinics to derive performance metrics easily and to add them to the referral service.

The Dutch approach strongly supports a gradual implementation and co-existence with existing HCIT approaches. Not a ‘big bang’ replacement, healthcare providers have invested heavily in HCIT over the last years. The Netherlands has one of the highest penetrations of practice management and HIS/CIS solutions. Additionally, 100% of hospitals have chosen digitised reglery (PACS). The EHR approach assumes the principle of autonomous healthcare providers. Information ‘stays at the source’, creating a virtual record whereby healthcare providers can access information from other systems online through secured connections, one-time login, etc. Everything is based on patient consent. And it works.

Experience shows that involvement of healthcare providers in regional initiatives (such as the one million patient provider) offers a good basis for success. Using existing regional cooperation structures, it creates a better understanding of the needs/benefits of the individual healthcare providers. The mutual trust stimulates willingness to share information. The implementations are done faster with greater acceptance, fast and iterative software development approaches complement this flexible organisational approach. The open competition model stimulates HCIT providers, such as TopicsCare, to work continuously on the cutting edge of e-health solutions. Using standards like IHE and HL7 discourages lock-in to specific vendors. At the same time, co-existence with other facto standards and even proprietary protocols enable a gradual and smooth introduction and transition into the new e-health world. In the coming years regional initia- tives are expected to cover the entire country, whilst, in parallel, all regional solutions will connect to the country-wide infrastructure. The solution space is now being extended to new services, for example other disease management solutions, home care, youth care and more.

E-health in the Netherlands

PACS: Netcentric clinic services based on JiveX product line

The drug information system AIDKlinik developed by Dosing decisions is the cornerstone for better-controlled medication dosing. Dosing reports: ‘It is used to maximise the safety and efficiency of drug therapy qualitatively and quantitatively, to prevent errors with medication by running database checks on individual patient data prior to drugs being prescribed.’

Among users of the software is Professor M Dominik Alschger MD, Head of the Centre for Internal Medicine at the Robert-Bosch Hospital in Stuttgart, who said that, given the increasing complexity of medication, any tools that help to provide information quickly and precisely at the point where the best possible drug reliably, quickly and economically and to avoid interactions with other drugs. It is therefore a valuable tool for all doctors.

‘It’s as simple and efficient as using Google,’ adds Dosing, which has worked closely with University Hospital Heidelberg, where digital medication prescriptions have been provided since 2003.

France – Ixil will unveil the latest version of SurgiMedia, the company’s integrated display system for operating theatres, at the MEDICA trade show (19–22 November, Dusseldorf)

SurgiMedia is a multimedia digital-display station designed for use in operating theatres. It can be used for managing, checking and recording patient data. Ixil reports: ‘The latest version is fully integrated and modular, offering users greater flexibility. SurgiMedia is now available in two ranges of digital displays – a free-standing version and a hub version.’

The free-standing SA range is a fully integrated all-in-one system that displays, records and transmits patient data in the operating theatre (electrocardiographic inquiries, images of surgery and expert opinions). It can be adapted to fit any operating theatre setup. It is modular via its optional func- tional modules and allows the installation of multiple displays: it can be wall mounted, or attached to a surgical arm or a wheeled trolley.

The SA range is a complete solution for the entire theatre. It is based around a control centre that is installed by the operating area. This control system then powers the display on remote monitors, ensures the recording of data in a variety of formats, as well as the broadcasting of this data via video-conference. This system can be customised by Ixil according to each hospital’s specifications.

‘With both systems, data can be retrieved directly from other devices in the operating theatre (such as microscopes, endoscope cameras, computers and imaging devices), from CD’s, or from the PACS via the network. SurgiMedia has an intuitive touch screen based on pictograms, which is easy to use.’

Based in Saint Martin d’Hères (near Grenoble), Ixil designs and develops computer-based surgical equipment and provides technical maintenance for its products.

Latest SurgiMedia to be launched at MEDICA 2008

Austria – Only 28% of the public would give first aid ‘no matter what’, 12% would’ve ‘very likely’ do so, according to a study by the market research institute Market. However, the Austrian Red Cross warns that those figures may be overly optimistic: their observations at accident sites indicate that significantly fewer people are prepared to administer first aid. ‘The most important measures that every student driver should learn are recovery position and cardiopulmonary resus- citation (CPR),’ advises Wolfgang Schreiber, Medical Director of the Austrian Red Cross.

In another recent study 73% of the participants reported being scared to do the wrong thing in an emergency. 40% had first aid training over a decade ago. Only 3.5% could identify the correct sequence of emergency measures at an accident site. Yet, greater knowledge could save lives. The Austrian Red Cross also points out that failure to render assistance is legally considered a misdemeanour; it’s better to make a mistake than not help at all. No one need fear punishment for a mis- take ‘I don’t know a single case where a first aider was taken to court for making a mistake,’ says Red Cross solicitor Bernhard Schneider.

The Austrian Medical-Samariter-Bund (ASB) has developed Samaräter, a mobile phone application that can be down- loaded (the mobile must be Java-enabled, as are most cur- rent models). On the phone display, this shows how to put a person in recovery position, how to perform CPR and how to staunch bleeding. ‘The system is intended to help a first aider to use the time sensibly until the emergency medical service arrives,’ explains Franz Schneitler, President of ASB Austria.

To date, about 4,000 people have installed Samaräter, which is network-independent, enabling use even in poor communication areas. ASB points out that the instructions are only to help in an emergency, it is no substitute for full first aid training, which is strongly recommended.

Samaräter details: www.desersamariter.at

IT & TELEMEDICINE

Emergency first aid advice via mobile phones

NUTRITION AND HEALTH

Obesity in adolescents leads to metabolic syndrome

Children are not overweight. Dramatic weight gain in some children and adolescents tends to start only during school, puberty and after. The reasons are known: unhealthy diet – too much, too fatty, too sweet – and lack of exercise.

According to estimates by the EU Commission 22 million children in Europe are overweight; five million of these are classed as obese. An EU Commission study published in mid-2008 showed that every third boy and every fifth girl aged between 13 and 17 years are overweight.

Nowadays, overweight children tend to suffer illnesses formerly only seen in adults, such as impaired blood pressure or fat levels. In short, these children are developing metabolic syndrome. As yet there is no standard definition of metabolic syndrome in children that is recognized across Europe. However, Italian researchers at the University of Milan, Turin, published in mid-2008 showed that almost every third boy and every fifth girl aged between 13 and 17 years are overweight.

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diagnostic CT scanning, and of course not forgetting to mention all the invasive techniques: cardio-an-giography and cardiac catheterisation.’

Which of the current imaging modalities is making the strongest progress?
The gold standard is multimodality imaging, because although a single tool may be sufficient, patient eval-uation is often best when used in conjunction with other techniques. Every imaging technique has its individual strengths and weaknesses; they all give a different piece of information, so it depends on what you intend to measure.

Therefore one of the hot ESC topics will be to discuss which are the right imaging tools to use for a special problem. Of course we have considerable hopes in molecular imaging. It may be the tool to iden-tify different forms of heart muscle diseases that may respond to differ-ent therapies and, in particular, may respond to stem cells. If it were to be shown that stem cells were to be beneficial, then to deliv-er the stem cells will require sophisticated imaging. The second hope we nourish in molecular imaging is to identify vulnerable plaques. We’ve just started to get some imaging information by using intravascular ultrasound of the coronary artery.

What form does work sharing take between cardiology and radiology imaging?
Nowadays the management of a patient is multidisciplinary, to achieve the best quality of health-care. As a cardiologist I think that radiology is extremely important in particular cases where physics is involved – radiation in particular. Radiologists need to be involved in ensuring that proper safety is taken into account. However, when it comes to actually deciding which imaging tool should be used for a patient, the cardiologist must be the person to make the decision. The most controversial issue here is who should execute the proce-dure? The demarcation lines for that are changing currently and they differ from country to coun-try. In the UK, for example, the radiologist will lead on cardiac CT; most of the others by cardiologists but with special expertise in imag-ing. I assume that coronary CT will probably remain the area of radiologists just now.

What will be the biggest challenges for cardiology in the future?
‘Heart transplantation is a fantas-tic technique but we clearly need to think about some form of alter-native technique, which may be stem cells or a form of artificial heart. Better still, of course, would be better implementation of preven-tion. We probably could deal with most of the cases of heart fail-ure if prevention would be better, which brings me to obesity, which causes an increasing number of heart diseases. Last year, at the ESC opening ceremony, I empha-sised my dislike of smoking. Now I see child obesity as a major issue to take care of. But it is much tougher to handle because you cannot legislate what people eat. The trouble is that fast food is much cheaper than a healthy diet. It will take huge educational pro-grammes to accomplish a change of thinking.’

Finally, it would be very helpful to identify the 20–30% of patients benefitting from treatment with drugs, because this would lead to enormous cost savings and allow access to medicinal treatment for people who truly need it. What we are doing now is treating the whole population with a drug or procedure from which only a few profit. But the most important thing in cardiology is preventing in-chaemic heart disease. We have to identify the people who show an aggrediated risk to optimise our strategies of prevention and treat-ment based on the individual.”

Last year’s key focus was on heart failure. What will be this year’s hot topic?
KF ‘This year we decided to go for cardiovascular imaging because any cardiovascular condition that will be discussed during our con-gress always involves imaging in some form. Imaging is the corner-stone not only for diagnosing a condition but also to assess prog-nosis and tailoring individual treat-ment, too. By imaging we are talk-ing about procedures from the simplest form such as the electrocar-diogram to the most complicated non-invasive imaging techniques – MRI, nuclear imaging, echocar-diography and, more recently, cardio-
Blood pressure-related disease is a major global health problem and is responsible for nearly eight million deaths annually. Blood pressure abnormalities are strongly associated with many different chronic diseases. Nevertheless, blood pressure abnormalities are also associated with mental health outcomes such as depression, anxiety and cognitive impairment. Both depression and anxiety are highly prevalent in the general population and are associated with increased risk of mortality. Furthermore, blood pressure abnormalities are also associated with increased risk of cognitive impairment and dementia.

Sub-Saharan Africa (SSA) is a region with high prevalence of hypertension. In SSA, hypertension is a major public health problem and is responsible for a large proportion of the burden of disease. In SSA, the prevalence of hypertension is estimated to be around 40% in adults aged 40 years and above. The prevalence of hypertension is highest in urban areas and among people with lower socioeconomic status. The prevalence of hypertension is also higher among women than men. In some countries, the prevalence of hypertension is even higher than in developed countries.

The increased prevalence of hypertension in SSA is due to several factors. First, the prevalence of hypertension is increasing due to the changing lifestyle of people in SSA. The prevalence of hypertension is higher in urban areas and among people with lower socioeconomic status. Second, the prevalence of hypertension is increasing due to the changing diet of people in SSA. The prevalence of hypertension is higher in urban areas and among people with lower socioeconomic status. Third, the prevalence of hypertension is increasing due to the increasing prevalence of chronic diseases in SSA. The prevalence of hypertension is higher in urban areas and among people with lower socioeconomic status.

In conclusion, hypertension is a major public health problem in SSA and it is responsible for a large proportion of the burden of disease. The prevalence of hypertension is increasing due to the changing lifestyle of people in SSA, the changing diet of people in SSA and the increasing prevalence of chronic diseases in SSA.

Dr Yackoob Kassim Seedat, Nelson R Mandela School of Medicine, Faculty of Health Sciences, University of Kwazulu-Natal, Durban, South Africa

Dr Fiona Turnbull, George Institute for International Health, University of Sydney, Australia

Sub-Saharan Africa (SSA) contains a diversity of different disease settings and countries (SA in all) of vastly different socio-economic status. Data from many parts of sub-Saharan Africa are poorly explored because of data constraints. South Africa is one of the few countries where data are reasonably accurate. Available data focusing on black groups indicate that hypertension seems more common with increasing acculturation, with a group of truly rural dwellers still being relatively protected. However, it is not known what proportion of all cardio- and cerebrovascular deaths in rural communities are attributable to hypertension, and the relative importance of the different factors that contribute to these deaths. The evolution of urbanisation in SSA is guided by many considerations, relatively intense to the advances of civilisation versus those succumbing to urbanisation either gradually or rapidly.

The challenge that remains for the panel is the low availability of clinical decision support tools that utilise these personalised patient data in a meaningful way. The importance of this point is highlighted by the fact that very few patients receive adequate post-myocardial infarction treatment therapies and improve their long-term outcomes. This is the case of many different areas of biological research, including molecular biology, biochemistry, biophysics, anatomy and physiology — a task that will be facilitated by the use of standardised mark-up languages such as XML and FHIR to describe them.

Patient-specific information created in the course of different clinical conditions and treatments can be used to improve the accuracy of the model over time, particularly in relation to incorporating molecular-level cardiovascular disease pathways for diagnostic purposes, the first application of which could even take into account specific gene defects in individual patients. By having an accurate personalised model of the patient’s heart to work with, doctors may be able to gain a deeper understanding of the patient’s disease state. This would allow them to make more accurate diagnoses, predict the likely effectiveness of different treatment therapies and improve the therapy planning. In addition, the models are expected to lead to the development of many different areas of biological research, including molecular biology, biochemistry, biophysics, anatomy and physiology — a task that will be enabled by the use of standardised mark-up languages such as XML and FHIR to describe them.

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Recent studies have shown that overweight and obesity during childhood and adolescence have a negative impact on the functioning of the internal walls of the arteries (vascular endothelium), paving the way to the development of an arterial vascular disease from an increasingly early age. They also prove that, regardless of age, race and sex, child and adolescent obesity affects the vascular endothelial functions. 'The evidence that the risk factors for cardiovascular diseases that reveal themselves in adulthood begin in childhood or adolescence makes it imperative that prevention strategies be planned from a very early age,' said Dr Héctor Truncalelli, President of the Paediatric Cardiology Committee of the Argentine Federation of Cardiology (FAC), speaking this May at the World congress of Cardiology, held in Buenos Aires. ‘These risk factors, such as overweight and obesity, as well as a sedentary lifestyle, nicotine addiction, dyslipidemias, hypertension and type 2 diabetes, share a common element that cannot be denied: the adoption of poor health-related habits characteristic of western societies.’

Released at the congress were the preliminary results of the Educando (Educating) Plan, a project, developed by the Argentine Federation/Foundation of Cardiology, and launched in 2001. The plan aims to prevent cardiovascular disease from childhood, and is targeted at primary school teachers, to encourage healthier lifestyles by providing information about the disease and prevention. 'Its clear and didactic message can be easily communicated to children,’ explained Dr Rodolfo La Greca, co-director of the plan.

Since the programme began in 2001, around 8,000 primary school teachers, in charge of about 100,000 children between four and five years old, have received training. ‘We will try to convey the Argentine experience because, due to its characteristics the Educando plan is unique as regards the centralised and unified management of the plan, addressed to teachers and not directly to children, who sometimes do not receive the message properly,’ Dr La Greca pointed out, adding that teachers are the proper vectors to convey life quality concepts to children.

The World Heart Federation in Colombia also has a project to promote healthy life habits in childhood and adolescence. ‘Hearty Habits For Life’, presented through the television show Plaza Sesamo (Sesame Workshop), consists of the development of audiovisual materials that encourage preschool children (aged between three and six years) to take regular physical activity and eat a healthy, balanced diet, and to promote the importance of instilling healthy life habits in children among their carers. Along with this the project encourages multi-sector collaboration for the prevention of cardiovascular disease, said Dr Shahyar Sheik, President of the World Heart Federation, who added that it also aims to ‘...identify those elements of the programme that are cost-effective in order to reproduce them; and to develop an association with Plaza Sesamo that can be spread to other countries.’ This project began in 2006, with the development in Colombia of audiovisual content that focuses on healthy life habits, designed to be used by health and education professionals and to enable the later evaluation of their impact on both children’s and parents’ activities. Six out of the 27 audiovisual materials initially planned have been broadcast in 2007 within the Plaza Sesamo show, which is broadcast virtually all over the American Continent through the cable TV channels Discovery Kids, TeleFutura and Televisa, and others. New episodes are being broadcast during 2008.
The growing HF population

The number of HF sufferers is expected to climb to epidemic proportions. Worldwide, HF affects nearly 23 million people. In the United States, HF affects approximately 4.7 million persons with approximately 550,000 incidences of HF diagnosed annually. Estimates of the prevalence of symptomatic HF in the general European population are similar to those in the United States and range from 0.4 to 2.0 percent of the total population. Existing gold-standard pharmacological strategies are able to provide superior compensation of acute and early-stage HF patients, increasing their survival rates without ensuring a full recovery. This results in an increasing long-term shift of such patients into the advanced HF group.

With no new drug therapies addressing advanced HF and existing pharmacological strategies failing to compensate for a weakening heart, alternative solutions have to be found. Reports Dr Sergey Ishin, Datamonitor’s senior cardiovascular analyst, ‘Cardiac transplantation continues to be the gold standard for the treatment of end-stage HF. However, the number of potential transplants far exceeds the number of donors. In the US, about 2,500 heart transplants are carried out each year and research has suggested that up to 100,000 patients have advanced heart disease that would benefit from transplantation. This leads to 30% of patients on the waiting list dying annually.’

Cardiac resynchronisation therapy (CRT), through multiple randomised clinical trials, has demonstrated promising results in terms of both safety and efficacy, improving left ventricular efficiency and, subsequently, improving functional class. However, one of the greatest limitations of this technology is the fact that existing CRT devices, similar to pharmacological treatment, can only temporarily improve symptoms and to some degree delay the progression of myocardial deterioration. Unfortunately, neither can prevent, stop nor reverse it. This unfortunate situation eventually brings advanced HF patients back to the heart transplant waiting lists,’ Dr Ishin points out.

Improving survival with alternative solutions

Although advances in surgical techniques and immunosuppressant therapy make it possible to perform successful heart transplants even in the most critically ill patients, the rapidly growing end-stage HF population creates a tremendous gap in the number of patients waiting for new hearts and the number of organs that actually become available, Dr Ishin adds. ‘In view of this, in addition to avoiding the immunosuppression and rejection complications of transplantation, mechanical circulatory support devices work as the only promising option which can help resolve the issue of organ availability and save more patients.’

The idea of finding a mechanical alternative to donor transplants is not new, Datamonitor points out. Mechanical circulatory support devices and total artificial hearts have been under development since...
Can technology diminish reliance on heart transplants?

In 2007 the Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS) reported device malfunction in 9% of all reported implantation cases. Factors that affect the probability of device malfunction are directly related to the number of individual components and moving parts in the system. Hence, simplification of design and reduction in the number of components and moving parts should improve long-lasting performance and durability of devices.

In addition to device malfunction, device-related infections are one of the most frequent complications of ventricular assist device placement. Infections are reported to occur in no less than 13% of cases, Dr Ishin points out. ‘Although device-related infections can involve any aspect of the device: the surgical site, the driveline, the device pocket, or the pump itself, and more than half of all device-related infections include multiple sites, the existence of external components, such as drivelines and batteries, leads to a significant increase in the chance of an infection, leading back to the problem of external power supply and longer lasting batteries.

‘Although at present we can not completely eliminate the need for heart transplantation, rapid technological developments indicate that we are not that far away from sorting out medical and surgical issues and device-related infections with serious breakthroughs expected within next five to 10 years,’ Dr Ishin concludes.

Can technology diminish reliance on heart transplants?

24/7 attention without putting your patient's life on hold.

Syncope is often difficult to diagnose, yet the consequences can be serious. You want to know exactly what happened when it happened. Because only by understanding the cause you can determine the right treatment.

In 2007 the Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS)
Contrast-enhanced MR angiography (CEMRA) has evolved as an increasingly competitive diagnostic modality challenging both catheter angiography and CT angiography (CTA) for imaging of nearly all vascular territories. Over the recent years, improvements in gradient technology, pulse sequences, and postprocessing algorithms, combined with dramatic improvements in radiofrequency (RF) technology, have enabled the current status of CEMRA applications at 1.5T. Lately, whole-body 3T MRI systems have been introduced, with the promise of greatly improved signal-to-noise ratio (SNR) compared to 1.5T. With 3T imaging it appears feasible to obtain almost double the available SNR compared to 1.5T.

However, the move from 1.5T to 3T involves more than just increasing SNR. For some pulse sequences, many of which are now routine for imaging at 1.5T, there are substantial trade-offs at 3T such as so-called dielectric resonance effect, which can result in bands of signal loss on the MR image, particularly when RF intensive techniques (e.g., steady state free precession sequences) are employed. High field imaging at 3T has proven to be particularly beneficial in combination with parallel imaging techniques. This technique allows for a reduction of MRI measurement times by using spatial information from multiple surface coil elements at the same time to substitute for the overall number of phase-encoding steps which determine the scan length. With the appropriate coil arrangement and receiver chain, it is possible to accelerate an acquisition manifold.

In this context, a specific number called 'acceleration factor' characterises the increase in collection speed. However, the penalty for the increased speed of parallel acquisition is a drop in SNR. Since there is more SNR available at 3T, it is possible to use higher acceleration factors at SNR values still adequate for diagnostic image quality. Therefore with identical acquisition times, images can be collected with higher spatial resolution or greater anatomical coverage compared to 1.5T.

Contrast-enhanced MRA is based on the use of T1-weighted fast spoiled 3D gradient recalled-echo sequence in combination with the T1-shortening effect of gadolinium-based contrast agents. As an attractive feature of contrast-enhanced MRA at 3T the sensitivity to injected gadolinium agents is increased. This is based on an increase of the longitudinal relaxation time (T1) of background tissues with higher field strengths, which allows the use of smaller volumes of paramagnetic contrast agents.

With recent advances in scanner gradient performance, fast data acquisition times for isotropic three-dimensional (3D) data sets for 576 matrix acquisitions have become possible enabling high spatial resolution 3D imaging during a comfortable breath-holding period.

An additional feature of MRI is the capability to generate temporal resolution 3D images that display the first-pass transit of contrast through the vascular system. Time-resolved MRA can provide additional functional information and requires only very small doses of contrast. For many applications, in-plane resolution can be preserved while through-plane resolution is commonly traded for rapid temporal sampling.

Clinical Applications
In many institutions 3T CEMRA has found its role as the method of choice for the evaluation of the cranio-cervical vasculature.

The increased speed of parallel acquisition allows the extension of the thrombus into the right atrium is well demonstrated. As the MRI demonstrated that the thrombus was not attached to the atrial wall a surgical resection of the tumour was performed.

Stefan G Ruehm, Kambiz Nael, Derek Lohan and Henrik J Michaely* describe impressive images that benefit patient treatment
france – the contraction of the atria according to a study by and ventricles is differentially regulated, improved spatial resolution for accurate stenosis grading of carotid arteries appears mandatory. Similarly, high spatial resolution imaging for improved characterisation of vascular wall inflammation can play an important role to determine resectability of neck tumours. Cerebrovascular contrast-enhanced mra can be used to evaluate patients following treatment for vascular disease, for example to assess re-stenosis after endovascular treatment following stent placement or for follow-up of patients with vessel dissection in order to detect possible progression of stenosis or occlusion which may mandate invasive therapy such as surgery or stenting to prevent ischemic cerebral complications.

applications in the pulmonary circulation include evaluation of pulmonary embolism, pulmonary hypertension, and congenital heart disease. Pulmonary venous mra plays an increasing role for accurate planning and follow up of radiofrequency ablation therapy in patients with cardiac arrhythmia. for the abdominal vasculature, clinical applications include the assessment of atherosclerotic arterial disease, aneurysms, and dissections, as well as the preoperative assessment of tumour extent. in addition, mri venography is a rapidly growing application in chest, abdomen, pelvis and lower extremity which benefits from high spatial resolution and the potential reduction of contrast volumes.

indications for renal mra include the diagnosis of atherosclerotic renal artery stenosis, fibromuscular dysplasia (pmd), renal aneurysms, dissections, as well as the evaluation of patients pre- and post renal transplantation. in combination with functional imaging techniques such as ultrasound, nuclear medicine imaging, phase-contrast mra or perfusion mri, the accurate characterisation and quantification of the severity of stenotic renal artery disease plays an important role for planning revascularisation strategies. high-resolution mra at 3t may help to limit the over-estimation of the degree of stenotic disease and may therefore avoid unnecessary renal revascularisation procedures which may further increase the risk of patients with borderline renal function.

pmd represents the second most common cause of renal artery disease. it tends to affect younger patients. patients benefit from early diagnosis since there is a good response to balloon angioplasty. pmd usually affects the mid and distal arterial segments. these segments may be missed on conventional mra at 1.5t due to limited spatial resolution. it is expected that ce mra at 3t increases sensitivity and specificity for the early detection of pmd.

similarly to single station mra, multistation peripheral or whole-body imaging can be performed at 3t yielding high spatial resolution data sets with isotropic submillimeter voxel size. with the combination of parallel imaging, an appropriate contrast-injection protocol, and flexible table movement, venous contamination can be minimised or avoided. the procedure is feasible and holds promise for screening applications.

in summary, a wide spectrum of vascular diseases may benefit from imaging at 3t. our experience suggests that ce mra at 3t is robust and besides providing spectacular images holds promise to improve patient care by improved diagnostic accuracy which may positively affect therapeutic strategies.

*henrik j michaely is a consultant to bayerhealthcare*
NEW

HIFU surgical ablation products gain CE Mark

St. Jude Medical, Inc. has received European CE Mark approval for the Epicor LP cardiac ablation system. The system’s first-in-class 3-D imaging for its Epicor LP cardiac ablation system, a second-generation technology that uses HIFU (high intensity focused ultrasound) for surgical ablation of cardiac tissue, has also received CE Mark for its Epicor Medical HIFU ablation system and related surgical procedure. The procedure was performed through a single incision, and the LP System is equally suited for use in both closed-chest and open-chest procedures.

In surgical ablation performed with a HIFU energy source, energy is focused from outside a beating heart. This treatment has been designed to create precise and complete lesions to disrupt chaotic electrical impulses. The patient does not need to be placed on a heart-lung bypass machine nor is the heart stopped. Because HIFU energy is directed from outside the heart, it is likely to cause minimal damage to surrounding tissues.

The first patient to undergo treatment with the Epicor LP System was a 73-year-old male with coronary artery disease and atrial fibrillation (AF). The procedure was performed by cardiac surgeons Dalrymple-Hay and C. S. Price at the University Hospital in Oxford, UK. The patient, who had suffered persistent AF for over three years, had a normal heart rhythm upon completion of the ablation procedure.

An increasing volume of published literature is demonstrating the benefits of treating pre-existing AF in patients who are undergoing valvular or coronary artery bypass surgery,” explained Dr Dalrymple-Hay. The Epicor LP System provides a technology that is flexible enough to treat AF patients during either standard open chest procedures or minimally invasive surgical procedures.

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The Acuson SC2000 volume imaging ultrasound system is expected to be the first system in the world to acquire non-stitched real-time full-volume 3-D images of the heart in one single heart cycle – will be launched by Siemens Healthcare at the European Society of Cardiology (ESC) meeting in Munich. Referred to as ‘Echo in a Heartbeat,’ this new technology marks the greatest strides in 3-D ultrasound since the introduction of 2-D imaging in the late 70s, Siemens explains. ‘Instantaneous, non-stitched, full-volume imaging in 55 seconds after echo cardiography pioneers Ingolf Edler and Helmut Hertz acquired the world’s first cardiac ultrasound recording system in 1953.’

Klaus Hambuechen, CEO of Ultrasound, Siemens Medical Solutions USA Inc. added: ‘The system has unparalleled capabilities and allows users to easily and accurately interpret information pertaining to diseases of the heart. We see this as another key milestone in the evolution of ultrasound imaging technology, and we believe it will significantly impact the way ultrasound is used in the future.’

The system automatically derives reference plane images from the full-volume cardiac capabilties. The new system is expected to improve 3-D ultrasound performance by the 30-40% range, enhancing the system’s overall accuracy of 3-D ultrasound imaging, and providing better data for tracking and visualizing cardiac structures.

NEW

Echocardiography acquires instantaneous, non-stitched full-volume images in a single cardiac beat

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Economic recession: a cause of later CVD?

Germany – Bad economic conditions, e.g. a recession, at the time of birth may lead to a higher risk of cardiovascular mortality much later in life, according to a recent study published by researchers at the Institute for the Study of Labour (IZA) in Bonn.

The study showed that individuals born in a recession on average live 15 months less than those born under better conditions and that this difference can be mostly attributed to cardiovascular health risks. ‘What is surprising is that such effects may pop up 70 or 80 years after birth,’ said Gerard van den Berg, Economics Professor at VU University Amsterdam and Programme Director at IZA, who co-authored the study with Gabriele Doblhammer-Reiter and Kaare Christensen. In the intervening years no extraordinary health events may occur, until suddenly the fatal cardiovascular problems arrive. The authors report that they do not find such long-run effects on cancer in general, although certain types of cancer have been linked to low birth weight, another marker of early-life conditions.

The team used data on individuals born around 1900, as well as that of twins in Denmark, whose mortality causes have been systematically gathered for many years. The latter made it possible to check whether a twin pair’s health outcomes are more similar later in life if they were born under adverse conditions than if they were born under good conditions. The finding was that they are more similar later in life if the starting position was bad. Conversely, if an individual is born under better conditions, then individual-specific factors dominate more.

Why might a recession, for example, cause later damage to the cardiovascular system? Dr Van den Berg said analyses carried out by the team for specific parts of Denmark suggest that long-run effects are particularly triggered by the combination of suboptimal nutrition and a suboptimal health infrastructure early in life. Low household income is less harmful for the baby’s future if the environment has good healthcare and hygiene facilities. In addition, stress is possibly a major factor. Parents who are economically stressed may produce offspring with features that make them more susceptible to CVDs at advanced ages.

One may wonder whether the results are of significance for present-day birth conditions. Of course, we need another 80 years to know for sure. But there are signs that long-run effects are as important as ever. For example, birth weight studies among recent cohorts show effects on health and adult height that are as strong as ever. And with the advent of the fast food society, nutritional habits among segments of society may not be as good as they used to be.

From this point of view, it may be worthwhile to screen young individuals born under adverse conditions for CV markers and predictors, and to expose those who have unfavourable test values to preventive interventions. Moreover, the results support investments in nutritional quality and health infrastructure in countries with a high degree of deprivation, as a means to reduce the cardiovascular mortality rate in future years.

As recession looms in various countries, so the effects of economic stress on families may be passed on to the children born during such times, causing a higher risk of them developing fatal cardiovascular diseases in later life.

HeartVue 6S seeks USA marketing

Pegasus/Heartvue LLC has announced that clinical studies of its HeartVue 6S Heart Screening System – which obtained CE Mark Approval in Europe almost two years ago – have been completed according to FDA guidelines, as a pre-marketing condition for release in the USA.

The HeartVue 6S Screening System, use as a screening tool, provides a quick, accurate assessment of patients with suspected coronary artery disease in 1–2 minutes. The clinical studies included testing 170 patients of various ages, genders, races, weights and health conditions. The results will now be analyzed, interpreted and presented to the FDA in the form of a 510K Filing.

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SYNCOPE Diagnosis and therapy

Karl Eberius MD, European Hospital's new correspondent, discussed advice for physicians with Professor Andreas Schuchert, principal author of the German Society of Cardiology's official statement on syncope.

**Heart sounds**
The basic diagnostic physical work-up often only requires a few steps. The first is auscultation of the heart, during which pathological sounds of any kind must be assessed as warnings of cardiac syncope. Prof Schuchert emphasises: The neck vessels should also be auscultated for stenosis of the carotid artery. The physician should also listen very carefully for an irregular heartbeat or a heart rate below 50 or above 100 beats a minute, which may indicate AV block or atrial fibrillation as the cause of syncope. The most important alarm signals are evidence of cardiac insufficiency – for example, the legs are oedematous or there are rattling sounds from the lungs or a congested liver is detectable more than two finger widths below the rib cage,' he reminds us. 'The combination of cardiac insufficiency and syncope indicates a critically raised risk of mortality and therefore needs to be immediately diagnosed.

**Vasovagal events**
If that basic procedure indicates no cardiac cause, the physician can focus on determining the actual type of syncope – often possible by looking at the medical history. 'A vasovagal attack, the most frequent kind of syncope, must always be assumed, for example, when typical symptoms preceded the fainting attack: nausia, sweating, diziness, drowsiness, weakness, abdominal discomfort or blurred vision,' he explains. 'Similarly when fainting followed a long period of standing tensely or the attack followed pain, emotional stress, exercise or procedures like having blood taken.'

**Fainting during defecation**
Situational syncope must be assumed if loss of consciousness occurred during defecation, coughing or vomiting. 'Unlike the vasovagal attack, the trigger in these cases is not a diffuse sensation, like anxiety or pain, but a clearly defined situation. Furthermore situational syncope typically occurs more suddenly and without any warning.'

**Orthostatic syncope**
When standing up from lying down or sitting. Unlike a vasovagal attack, an orthostatic syncope typically does not occur after standing for a long period but immediately after the change in position.

A drug-induced syncope should be considered if the blood pressure (BP) has been too drastically modified in hypertensive patients. On the other hand, if fainting occurs when turning the head, for example when shaving or looking over one’s shoulder in a car, carotid sinus syndrome should be considered.

**Addtional examinations**
Depending on the result from the basic diagnosis, various other investigations may be recommended to clarify the type of syncope. If the medical history indicates an orthostatic syncope, for example, diagnosis can be confirmed by the Schellong test, in which the BP taken after five minutes in the lying position is compared to that taken after subsequently standing up. The diagnosis is confirmed when the systolic value after standing up falls below 90 mmHg or is more than 20 mmHg below the measurement taken when lying down. Prof Schuchert points out that, if the previously ascertained medical history indicates vasovagal syncope, carotid sinus syndrome or situational syncope, the Schellong test is unnecessary. Moreover, tilt tests may be useful, for example when vasovagal syncope is suspected but the medical history does not unambiguously indicate this. However, the predictive value of tilt tests is increasingly challenged.

**Laboratory tests of doubtful benefit**
The professor believes laboratory tests are almost always unnecessary for clarifying syncope – particularly true for the determination of 1h levels, a test frequently performed due to a lack of other ideas, but which is actually only necessary if anaemia is clinically indicated. 'In 99% of syncope diagnoses no laboratory tests are required.' The same applies to carotid Doppler examinations, which are only indicated when sounds of stenosis can actually be heard on auscultation of the vesicle of the neck. 'Otherwise the probability of syncope caused by carotid disorders should be ignored.'

**Counter pressure**
Vasovagal syncope can often be treated effectively by the simplest methods. Counter pressure manoeuvres are particularly useful in many cases, and in recent years have become a highly popular way to prevent decreasing BP without complications.

Before beginning treatment for vasovagal attacks, specialists recommend sufficient time is given to explain the therapy. 'Patients should know that fainting attacks are not a symptom of a dangerous disease of an organ,' Prof Schuchert emphasises. 'When they know this they can then react more calmly to the fainting, which for many is already a great relief.'

During a consultation the typical trigger factors for syncope should be addressed. ‘Someone who tends to have syncope attacks in narrow, overheatened spaces should avoid department stores. And a person who has problems when asked for a blood would be wise to lie down before the procedure,’ he advises, deploying the omission of these simple but important recommendations.

**Counter pressure manoeuvres**
In many cases a very effective aid, widely used in clinical practice to counteract the fall in BP in a vasovagal attack. Counter pressure manoeuvres require a hand size rubber ball, simply carried in a pocket or bag. If a fainting attack approaches, in vasovagal attacks not frequently heralded by typical symptoms, e.g. nausea, diziness or drowsiness, one squeezes the ball as hard as possible. As a result of muscle contraction, the sympathetic system is evidently activated, preventing the fall in BP caused by vasovagal attacks.

Alternatively one can perform the manoeuvre shown in the image.

**Treatments**

<table>
<thead>
<tr>
<th>Cardiovascular causes</th>
<th>Cardiac syncope shows a clearly raised death rate (18-33%) annually depending on the study, he adds</th>
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<tr>
<td><strong>What is relevant in medical history?</strong></td>
<td>Syncope caused by cardiac disorders can often be identified during the anamnesis by asking just a few questions, importantly whether the syncope occurred during physical effort, which, the professor points out, is primarily an indicator of aortic stenosis or hypertrophic obstructive cardiomyopathy. Another question: when was the last time syncope occurred before or after the syncope, which may indicate coronary ischaemia, the professor explains. The physician should also check for previous arrhythmia or other cardiac disease. If, for example, there has been a heart attack in the past, cardiac syncope should be assumed until there is evidence to the contrary. Prof Schuchert, who also considers the family’s medical history an important indicator, once saw the sudden death of a young relative from cardiac causes may indicate hypertrophic cardiomyopathy, e.g. Brugada syndrome – rare but should be considered.</td>
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Simply clasp your hands together with arms at about chest height in front of your body and try to pull your arms apart while not loosening your clasp. In both counter pressure manoeuvres muscles contract for as long as it takes for the signals of the attack to disappear.

Medication
Medication can also be useful to treat some vasovagal cases, particularly when other therapies have failed and syncope continues to occur. ‘The drug of choice is the alpha antagonist midodrine. At a dose of 3 x 10 mg/d this effectively raises the BP, and in almost all cases the drug avoids recurrence,’ the professor says. However, it is not suitable for every patient because it potentially increases the BP. This applies particularly to the elderly, whose BP compared to that of younger people is often already raised. Additionally, since this drug must be taken three times a day, many patients have compliance problems.

If patients suffering vasovagal attacks are already hypertensive, beta-blockers can also be a useful alternative. Although not recommended by the ESC due to unproven benefit in vasovagal attacks, studies in recent years in patients aged 40+ indicate positive effects, so for this age group they are often to be recommended, he points out. Other drug alternatives, including selective serotonin re-uptake inhibitors, e.g. paroxetine, are being discussed, but Prof Schuchert recommends their very careful use due to lack of long-term data.

Furthermore, in cases of vasovagal attacks the physician should check whether the patient is taking anti-hypertensive medication, which might cause the syncope and which could be reduced or discontinued.

In some cases a cardiac pacemaker may be an option. ‘Such an implant is indicated if, for example, an event or loop recorder, which records the ECG over several months or even years, shows that asystoles are the cause of the fainting attacks,’ he points out.

Fluids and physical exercise
Often, various lifestyle changes are also recommended to avoid vasovagal attacks: more fluid intake, more salt in the diet and more physical exercise. However, scientifically, he points out their benefit has not been confirmed, which does not mean such changes are not worth a try in sufficiently motivated patients.

For many specialists, less recommendable is ‘tilt training’, in which patients stand leaning against a wall, depending on the treatment plan, say for half an hour daily, to train their circulatory systems. Theoretically it produces good results, the professor says, but it’s time-consuming and thus compliance is very poor.

France – Seeking to set the agenda for urgent atrial fibrillation (AF) research, European and international cardiologists will gather this October at the European Heart House, in Sophia Antipolis, the headquarters of the European Society of Cardiology.

A panel of international AF experts has been invited by The European Heart Rhythm Society (EHRA) and the German Atrial Fibrillation Network (APNET) to their second joint conference to define new research perspectives and identify unresolved clinical issues in the diagnosis and treatment of AF.

Among subjects for discussion: anticoagulation in patients at intermediate stroke risk; new concepts for rhythm control drug treatment; what to do if pulmonary vein isolation fails; relevance and intensity of ECG monitoring in clinical practice; relevance of clinically identifiable risk factors for AF progression; what causes the first episode of idiopathic AF, and novel therapeutic goals for AF treatment.
NEW
Website advice for HF patients

A new educational website specifically for heart failure patients, their families and carers, has been set up by the Heart Failure Association of the European Society of Cardiology. On this site, host ‘Anna’, an animated woman who speaks in a friendly, matter of fact way, guides the visitor through the website advice sections.

There are also animated explanations covering how the normal heart works, what goes wrong in HF, how the body compensates, and much else (example in illustration).

Cardiologists and physicians who wish to advise patients that they can learn more about their HF condition via their own computers, should pass on this address: www.heartfailure.org

Sample of website animated advice:

Implantable cardiac monitors

Syncope (fainting) is a leading cause of hospital emergency visits. In almost 40% of patients, syncope has a cardiac cause; in 50%, a non-cardiac cause, and in 40% the cause of syncope is unknown. Syncope is difficult to diagnose as syncopal episodes are often too infrequent and unpredictable for detection with conventional monitoring techniques.

Medtronic reports that its new ‘Reveal DX’ and ‘Reveal XT’ can provide diagnostic and monitoring insights into cases of syncope or abnormal heart rhythms, including ventricular tachycardia (VT), fast ventricular tachycardia (FVT), bradyarythmias and asystole. ‘The Reveal DX continuously monitors the heart’s electrical activity to help physicians diagnose whether or not there is a cardiovascular cause for symptoms such as fainting, dizziness and unexplained seizure-like episodes.’

During a simple out-patient procedure, the Reveal DX monitor – weighing just 15g and about the size of a memory stick – is placed subcutaneously in the chest area using local anaesthesia. The monitor then records important cardiac rhythm data, which may help a physician to diagnose the patient and provide appropriate treatment.

Unlike a pacemaker or implantable cardioverter-defibrillator, there are no leads (tiny wires) that extend from the device into the heart’s chamber(s). To store an electrocardiogram (ECG) at the time of an episode, a patient places a hand-held, pager-sized activator over the device and presses a button. Later a physician analyses the stored information and determines if the episode was caused by an abnormal heart rhythm.

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Heart Failure Congress 2009
30 May - 2 Jun 2009

Among the many aims of the Heart Failure Association of the ESC is the establishment of networks for the HF management, education and research. The HFA’s next annual meeting will be held next summer in the Palais Acropolis, Nice, France.

www.escardio.org/congresses/HF2009
Heart Failure 2009 Secretariat, ESC European Heart House, 2035 Route des Colles, Les Templiers - BP 179 06903, Sophia Antipolis Cedex, France.

Phone: +33 (0)4 92 94 76 00

30 May - 2 Jun 2009

www.european-hospital.com
Panel reviews safety of drugs cleared for echocardiography

USA – Last October the Food and Drugs Administration (FDA) added a ‘Black box’ warning to the labels of two contrast agents used in echocardiography imaging, examinations, around 200 reports of serious reactions were received involving patients given Definity. According to the FDA, the GEs’ option was not the result of any study prior to 25 October 2007. GE Healthcare had voluntarily withdrawn Optison after an FDA inspection indicated problems with the contract manufacturer. Optison was then re-launched last year. GE has stated that there are no differences in the agents’ effects.

In documents released by the FDA, Lanthus stated that there have been under 300 reports of serious complications by mid-2009, the mortality rate was small compared to the number of doses given – around two million – since Definity was approved. The FDA has reported that results from recent clinical trials show that doctors’ ability to make diagnoses have been improved through the use of Definity. Since October, the FDA has approved labelling changes for this contrast agent, which removed most of the warnings that had been added. However, four more deaths in patients given Definity have been reported to the FDA since October 2007. According to the Agency, one patient, suffering congestive heart failure, died within five minutes of receiving the dose; another, who suffered cardiac arrest minutes after receiving a dose, was revived. The FDA remains concerned about the accumulated safety data pertaining to marketed ultrasound contrast agents, and the labels for these products continue to be revised to contain a boxed warning that highlights the risk for serious cardiopulmonary reaction, the Agency stated.

New Molecular Imaging Techniques Aim at Detection of Earliest Steps of Disease Development

An emerging discipline of noninvasive cardiac molecular imaging, molecular imaging, has evolved considerably over the last few years and is increasing being translated from the preclinical to the clinical level. Molecular imaging allows for unique insights into specific disease mechanisms and holds great promise to change the practice of cardiovascular medicine by facilitating early disease detection, establishment of novel therapies, and selection of patients for treatment based on their individual disease biology (the ‘personal medicine’ paradigm).

Several different imaging techniques can be used for detection of molecular probes, including nuclear imaging, magnetic resonance imaging, ultrasonic and optical imaging, although molecular imaging techniques, and especially positron emission tomography (PET) are currently most promising because of their superior sensitivity for detection of small amounts of highly specific radioactive molecular probes in the body. The next generation of hybrid imaging system, which integrate PET with X-ray computed tomography (CT) will further refine the application of molecular imaging probes, because in registration with a high-resolution CT will allow for better localization of the specific molecular signal from PET.

Applications that are currently being tested in early clinical stages include the identification of individuals at risk for atherosclerotic plaque progression, identification of risk for development of heart failure and/or fatal ventricular arrhythmia, and monitoring of novel therapies such as stem cell delivery.

The field is still in its infancy and strong translational efforts need to continue to make ‘personal medicine’ a clinical reality in the next years. But there is a strong notion that, in the future era of personalized medicine, molecular imaging will play a key role for guidance of clinical decision making based on individual disease biology.
Feetal surgery

Scanning and cutting on a miniature scale

By Dr Soenke H Bartling

Although ultrasound imaging is a very powerful imaging modality it is mostly under-used. Ultrasound combines several very appealing characteristics. It is among the non-invasive imaging modalities which is relatively non-invasive. Similar to MRI, no harm to the patient can be caused by ultrasound.

Through the years it has witnessed great developments: Resolution of these imaging modes have been added and novel contrast concepts invented. It constantly serves doctors during the last decades. Often, it can be used to replace more expensive and more invasive (‘harming’) modalities. The latest developments have made ultrasound devices small and flexible so that they can be carried in a pocket and easily treated in remote medical facilities. Novel ultrasound probes were reduced in size and made 3-D, 4-D imaging possible – most famously ‘baby-facing’, where a mother-to-be can see the face of her unborn child in 3-D.

However, many still maintain that the power of ultrasound is under-utilised, whilst others say it is over-utilised.

To explain this apparent discrepancy let us take a look at what ultrasound is an imaging modality that is strongly dependent on the training level of the operator. The probes give insight into parts of the human body, but only those that are looked at. Furthermore, in contrast to all other imaging modalities, ultrasound does not allow a profound documentation of the findings. For these reasons, at least those findings that were not seen during the examination. An ultrasound examination cannot be looked at retrospectively. In other words, there are almost no consequences for a doctor if the findings are missed. This has led to ultrasound mostly being used for screening and not the final examination.

To compensate for declining reimbursements for ultrasound, doctors have increased the number of examinations, which itself leads to a consecutive decrease in reimbursement, despite the fact that a good ultrasound examination takes time. So, to perform a really good ultrasound examination no longer pays well.

While in many countries a wide variety of doctors perform ultrasound (radiologists, as well as specialists and general practitioners – in the USA the problem of a lack of trained staff has been solved differently: radiographers perform very standardised protocols that are then read by radiologists. Independent of widely discussed local implementations, the potential of ultrasound is not used to its full extent – healthcare providers (adoption, reimbursement, assure quality examiners) as well as the healthcare industry (make ultrasound less user dependent, assure proper documentation) have the potential to change this in the future.

and, very topical, the newly developed anaesthetic procedures developed at the DZPHT, which allow us to anaesthetize unborn babies safely and without putting too much of a strain on the mother’s cardiovascular system, and finally the ability to close up holes in the amniotic sac," explained Dr Kohl.

A hole in the amniotic sac is a problem well known from examinations of the amniotic fluid. It can lead to amniorrhxsis and premature births. The longer and more complicated the extent of the intervention, the higher the risk. The main problems feared by the surgeons are the occurring particularly before the 30th week of pregnancy. Up to two years ago this was a really big problem," he pointed out, but now around 80% of the babies treated are born after the 30th week, and 50% are actually born after the 34th week of pregnancy.

To avoid very early premature births Dr Kohl tends to treat problems that will only become life-threatening after birth, e.g. underdevelopment of the lungs in the unborn with diaphragmatic hernias, ideally only from the 34th week of pregnancy. Up till then he prefers not to disturb the baby’s development as far as he can. Even at this late stage in pregnancy he achieves sufficient catching up in the development of the lungs in most of his patients treated in this way.

However, there are some fetuses that doctors try to save at the earliest possible stage in pregnancy. The most common cases treated at the Centre are twins pregnancies. With twin-to-

twin transfusion syndrome the placenta vessels fuse together, causing a life-threatening exchange of blood between the twins. Using a laser, Dr Kohl and colleagues close the vessels, in this way saving most of the babies.

Dr Kohl has now developed a procedure for certain cardiac conditions that does not involve surgery. ‘Ultrasound scissors can sometimes show that the left side of the heart is very small and the main artery is very underdeveloped,’ he explained. In over two thirds of cases the baby needs cardiac surgery after birth, to widen the aortic arch. ‘My new approach is to give the mother oxygen in the last weeks of pregnancy. When this reaches the baby the lung vessels open through reflex. This leads to more blood flowing to the left side of the heart, which can then grow further.’ For some babies this completely eliminates the need for surgery after birth, for others doctors are at least able to improve the conditions for this kind of surgery. Dr Kohl has now dealt with 14 of these cases, and has five more already on his waiting list.

How does he find time to develop such new procedures? ‘The good thing about my special subject is that I have comparatively few patients,’ the surgeon explained, ‘therefore I have more time to re-define my approaches.’

By Edda Grabar

Ultrasound of a normal kidney (the intravascular blood flow, as measured through the Doppler effect, is color coded) combining the structural as well as functional information that ultrasound can derive.

UNDER OR OVER-UTILISED?

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stroke prevention

Prof Christian Arning MD, Medical Director of the Neurology Department at Asklepios Klinik Wandsbek, Germany, and Deputy Chairman of the German Society of Ultrasound in Medicine (DEGUM), gave an unequivocal answer: crucial – but only if the sonographer is properly qualified.

‘Without any doubt prevention is not only the best but also the safest treatment for stroke. It is precisely in prevention where ultrasound offers these enormous advantages over all other modalities, and this applies not just to radiation exposure. Roughly 90% of all strokes are due to insufficient blood supply to the brain due to vascular obliteration, including stenosis of the carotid arteries. Since this part of the human anatomy is easily investigated by ultrasound, in 98% of the patients we can assess the status of the carotid arteries quite definitely, without having to fall back on any other modality. It is our overall goal that ultrasound will supplant X-ray studies, even in the diagnostic workup of stroke. In the case of catheter angiography, a modality with a certain inherent risk of side effects, we have already been successful the standard modality up until recently, angiography of the cerebral arteries is uncalled for in 90% of cases,’ said Prof Arning.

Since no other low-risk imaging modality exhibits such an excellent spatial resolution as ultrasound he also advises: ‘Patients at increased risk for stroke should undergo regular preventive ultrasound workup. The degree of stenosis is the most important criterion when assessing the risk of vascular obliteration. From this information alone the expert investigator can infer the seriousness of the carotid artery stenosis.’

However, the safety and accuracy of the study requires proper training and extensive experience of the sonographer. According to Professor Arning many German hospitals specifically lack these competent healthcare professionals. The reason for this stems from the fact that although in Germany ultrasound is taught during residency, there are no uniform standards for the teaching syllabus. Furthermore, not even the qualification of the teacher has been laid down in the residency regulations. Therefore, quite often one resident will pass on his/her partial knowledge to the next. But for this modality the operator’s experience is of paramount importance. A study on abdominal ultrasound published in 2006 demonstrated that less experienced ultrasound operators came up with the correct diagnosis in only 39% of cases, while for the experienced sonographer this rate jumped to 95%. An accuracy of 95% is identical with that seen in other modalities, such as CT and MRI.

When patients are studied by sonography, other modalities, such as CT and MRI, the study requires proper training and sonographers. These are medical technicians with extensive experience and the diagnostic ability is hampered by the fact that they are not fully-trained physicians.

‘Qualified diagnostic ultrasound makes it possible to realise a new structure in diagnostic decision-making. Currently, in the case of ambiguous findings, a physician not well trained in ultrasound will refer the patient to the radiologist. However, it would be much better if patients with ambiguous findings could be referred to an experienced sonographer,’ the professor concluded.

The DEGUM certification scheme has three levels. DEGUM Level I is a qualified basic training, teaching the user the principles as well as simple applications. Prof Arning explained, ‘DEGUM Level II deals with more demanding applications and requires several years of experience by the sonographer. The level III certificate also includes the skills as an instructor. DEGUM III, the third and highest level of excellence, also includes scientific research in ultrasound.’

‘There is no “warrant” for a constantly high level of competence in ultrasound, the DEGUM has developed a voluntary scheme of certification that will make transparent the quality of the ultrasound study. For this certificate physicians will have to pass tests on specialised areas of application of ultrasound, sonographers who are not properly trained, time and time again either non-existent or at DGU in Stuttgart, booth n° 3.01!’

Visit us at Three Country Meeting in Davos, booth n° 205 or at DGU in Stuttgart, booth n° 3.01!

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www.hitachi-medical-systems.com
Philips HD15 ultrasound system

Philips has added a new platform to its HD ultrasound products – the HD15 – which aims to provide small hospital clinicians and private practices with advanced image clarity and broad application support for everyday use. "The HD15 brings capabilities that assure user simplicity, while maintaining all the advanced ultrasounds in a variety of clinical settings," explained Anne LeGrand, senior vice president, Ultrasound, for Philips Healthcare.

"The system may be used as a primary system for some users, or as a ultrasounds in emerging markets who require a feature-rich system but may not need all of the features of a high-end ultrasound system," Philips added. Along with workflow improvements, the HD15 capability includes general imaging, cardiovascular and obstetrics/gynecology applications. Features such as contrast enhanced ultrasound and PureWave transducer technology also allow real-time guidance and evaluation of minimally invasive treatments.

The HD15 includes Philips QLAB quantification software, XRES image processing and PureWave transducer crystal technology. "New Microline EX focusing provides sharper images and improved tissue uniformity throughout the depth of field through application of dynamic receive lens tuning with five times more focal points than previous generation systems," Philips explained. "Tissue-Specific Imaging presets and ISCAN one button imaging provide clear images with little to no adjustment."

A broad suite of configurable patient reports and exam storage options, such as DVD-CD-R/RW, USB drive, and full DICOM capabilities, provide efficient patient data management and collegial or specialist consulting.

Active native data allows clinicians to manipulate examination parameters and image settings even after a patient has left. "Images and Cineloops can receive further investigation by manipulating the original image to see new detail. Live allows the clinician to compare a previous exam side-by-side with an active exam in order to see immediately changes in structure or blood flow. This can be particularly helpful in comparing changes in cardiac and vascular anomalies, further documenting changes after interventional procedures, or evaluating foetal development."
Laparoscopy is playing an increasingly important role in urology and centres of excellence have been established to provide training in urological laparoscopic surgery. However, increased patient demand for the latest minimally-invasive techniques means there is still a potential shortfall in urology laparoscopists in Europe. Robot-assisted surgery may help ease the situation, though many leading urologists are not yet convinced either of its cost-effectiveness or ability to offer outcomes better than regular laparoscopy.

According to Per-Anders Abrahamsson, Secretary General of the European Association of Urology, ‘There are more demands from patients for minimally-invasive and laparoscopic surgery – with or without robot-assistance. That has been increasing exponentially in the last few years in many European countries.’

Laparoscopic urology surgery began in the mid-90s in America but was dropped because it was considered too time consuming to suit the needs of the US reimbursement system. In turn, French and German urologists took up the discipline and have become world leaders in developing the role of laparoscopy in the treatment of urological disease and tumours. Professor Abrahamsson, who is Chairman and Head of the Department of Urology at Malmö University Hospital in Sweden, said: ‘There is a great need in many countries in Europe and we have to teach more urologists in terms of laparoscopic urology surgery.

The EAU, through its European Urological Scholarship Programme (EUSP), and the British Association of Urological Surgeons (BAUS) has established laparoscopy training programmes for urologists. A study of residents’ laparoscopic surgery training co-authored by Dr Stephanie Kroeze of the University Medical Centre, Utrecht, con- cluded that laparoscopic training needs to be improved but highlighted laparoscopic virtual reality simulation as helping meet that need in urological surgery.

Frank Keeley, a consultant urologist at Bristol Urological Institute in England, said: ‘Urologists have been slow to develop laparoscopic expertise because there is no procedure which is relatively straightforward. As a consequence, the number of expert surgeons acting as trainers has been small.’

He said urologists had to develop their surgical expertise ‘on the job’ and after they had completed formal training, and added: ‘The impact on hospitals is fairly obvious: many surgeons do not offer laparoscopic surgery; open surgery involves longer hospital stays and more blood loss than laparoscopic surgery.’

Laparoscopic surgery utilises different skills to conventional surgery, but Mr Keeley believes there are clear advantages. ‘Patient quality of life after laparoscopic surgery is higher, and many patients now ask whether their operation can be carried out laparoscopically,’ he said.

‘Once the surgeon reaches the required level of expertise, he should have more job satisfaction and fewer postoperative complications.’

In urology, operations that laparoscopy most benefit include nephrectomy, adenokarci- nomy, and pyloplasty because an upper abdominal or loin incision can be very debilitating.

Although some centres are using robotic equipment for urological procedures, some surgeons have reservations about whether the technology provides better clinical outcomes than regular laparoscopic surgery.

Dr Vincent Ravery, professor and chairman of the Department of Urology, Bichat-Claude Bernard Hospital, Paris, and Chairman of the European Society of Oncological Urology, said that a problem in gaining a consensus on the value of robotic surgery is that circumstances differ from one European country to another. ‘In France for instance, this issue is not promi- nent because the pure laparo- scopic surgeons are skilled enough to proceed without robots but in other countries, in which regular laparoscopic proce- dures are not as regularly carried out, the robot is probably more important.’

Urologists say the robotic issue is often commercially dri- ven with suppliers encouraging hospitals to take advantage of the technology, without any widespread clinical investigation of its effectiveness.

Dr Ravery added: ‘The issue is also driven by the patients who come to us asking for the robots without any rationales but at this stage we are not sure that robot- ic surgery dramatically improves on the oncology and functional- ity of regular surgery.’

However, urologists acknowl- edge having the option of robotic surgery makes it easier to attract patients and for some complex procedures the robot may be more effective, especially with a radical prostatectomy.

Advantages of robotic surgery include the surgeon being seated and having a 3-D visualisation, increased precision, tremor filtration and improved access to and manipulation of organs, tissues and nerves, and for patients shorter hospitalisa- tion, reduced pain, faster recovery times, and quicker resumption of normal activities.

Concerns are being raised across Europe that not enough urologists are experienced in laparoscopy to meet growing demands of patients. Mark Nicholls reports.

SONO-ELASTOGRAPHY

A valuable additional method to improve diagnostic precision of prostate cancer

Dr George Salomon said the method is not yet standardised but there are different ideas on how to arrive at a standardisation. Despite these points, the method is not being used widely in Europe. Why not? One possible reason for this has been attributed to the fact that the industry has neglected this method for a long time. Promising approaches have been around for a couple of years, but they were not followed through. Today, as far as I know, the Hitachi system is the only one on the market that offers this diagnostic benefit. But things seem to be moving ahead as other companies are planning to commercialise sono- elastography – a fact which proves that the method is indeed promising.

At the same time sono- elastography is increasingly used clinically as an additional modality. This will provide more data to work with in order to assess and optimise the method.

In a previous study we were able to show that sono-elastography as such offers diagnostic benefits. We compared pre-surgery ultrasound data of cancer patients with the post-surgical histological results of the removed tissue. Sensitivity and specificity were about 76%, the positive predicative value was 87%, and the negative predictive value was about 50%. That means the method is significantly better than conventional ultrasound. However, to assess the precise diagnostic benefit we need more data that we can analyse. Sono-elastography is only an acceptable diagnostic tool for prostate cancer if it offers the same reliability as the gold standard.

At this point, measuring tissue elasticity is a more complement, which provides additional information. What would a physicist need to learn to use this? As with any other modality there is a certain learning curve for sono- elastography. First, one has to understand how the hard tissue is displayed. That means the user has to move the transducer precisely, in order to generate the elasticity images. In a second step the images have to be interpreted based on their reproducibility. And finally the elastogram has to be compared with conventional ultrasound. If, for example, the elastogram shows hardened tissue, the ultrasound image can provide information on the nature of the hardened tissue, for example whether it is a calcification. Currently, the criteria to assess elastograms are
A compressed cranial nerve by blood vessels is responsible for numerous diseases. The most well-known example is trigeminal neuralgia, which is agony for those who are affected by its sudden shooting pain in the face.

Other examples are glossopharyngeal neuralgia, hemifacial spasm or even superior oblique myokymia in which, likewise, too close contact between a cranial nerve and a vessel is assumed to be the cause.

Further treatments or the choice of used position-teral manoeuvre should not be the only treatments considered for effectively helping cases of dizziness. Surgery can also be useful for some forms of dizziness as shown by the case of a 61-year-old woman who suffered repeatedly from vertigo. Most recently, she suffered from disabling positional vertigo. She had sudden attacks of vertigo several times a day, which were of strikingly short duration. The unpleasant event lasted from just 30 seconds to a maximum of five minutes, usually accompanied by a whistling sound in the right ear. Another particularity was the fact that the attacks ceased when the patient lay down on her right side, as was reported in the journal HNO (ENT) by Dr. Wolfgang ROUTER and team from Lippstadt, Germany.

These typical symptoms indicated vestibular paroxysmia (disabling positional vertigo) which is well-known for its extremely short attacks lasting from seconds to minutes and which can be triggered or ended by certain positions of the head. Tinnitus, sounds in the ears, is also characteristic accompanying symptoms for this diagnosis. The cause of disabling positional vertigo is an artery causing the problem and the eighth cranial nerve (in the skull). There is also a good chance of improvement, can be anticipated in about 75–80% of cases, the same rate of success as for trigeminal neuralgia – likewise caused by too close contact between a vessel and a cranial nerve.

Only surgery can provide help for some forms of dizziness, writes Karl Eberius MD

Compressed cranial nerve as the cause of vertigo: In disabling positional vertigo an artery near the brain stem press on the eighth cranial nerve. Surgery can provide a cure. Leeding ten to three hours the operation normally lasts around 2.5 cm in diameter in the skull.

Rate of complications: roughly 5–8%.

The decision for such an intervention however should be carefully considered on account of possible complications, emphasised Professor Friedrich Albert, head of the neurosurgery unit of Paracelsus Hospital, Osnabrück, after carrying out the surgery on the vertigo patient. ‘The operation is only recommended if the patient’s everyday life is considerably restricted because of the attacks and the diagnosis of disabling positional vertigo is unequivocal.’ He pointed out that this surgery carries a roughly 5–8% risk of serious complications, e.g. giddiness, giddiness away? – which is assumed to be the cause.

It is led by Professor Steven Laureys, Head of Clinics in the Department of Neurology.

Asked why coma research is so important, the professor said that, due to

Adiposity is not factor for stroke

Professor Tobias Back MD is medical director at the Clinic for Neurology and Neurological Intensive Medi-

The CDC has a strong track record in promoting control of abdominal fat mass and stroke risk he presented the study results at the annual congress of the American Heart Association in Washington, DC.

There had only been insufficient studies which assessed the fat distribution pattern of stroke patients. The few available preliminary data were collected in the US. Now we are proud to say that we were the first European team to present meaningful data that show that abdomi-

Professor Jens-Uwe Stolzenburg MD (right) and Karl Eberius MD (left) at the clinic in Arnsdorf, Germany, between February 2008 and January 2009 presented the study results at the annual congress of the American Heart Association in Washington, DC.

The study team were able to demonstrate that in overweight patients it is not the body mass index that predicts stroke risk but solely abdominal girth. ‘There had only been insufficient studies which assessed the fat distribution pattern of stroke patients. The few available preliminary data were collected in the US. Now we are proud to say that we were the first European centre to present meaningful data that show that abdominal adipositas is the sole independent risk factor associated with cerebrovascular stroke,’ he explained.

Funded by the German Ministry for Education and Research the research project was conducted in Mannheim and Heidelberg, Germany, between February 2008 and January 2009. The researchers took great pains to assemble a suitable regional cohort of regular people. In the end the control group was twice that size in order to optimise the statistical relevance of our results. Average patient age was 61.

The waist-to-hip ratio is a useful res-
Coma: Functional MRI to predict first signs of awareness

Professor Steven Laureys

Generally a risk

Abdominal girth is decisive

to modern emergency medicine and intensive care, an increasing number of patients survive injuries, toxications or hypoxia.

Unfortunately they are often considered as a homogeneous group of hopeless cases, but this is not true. Studies have proved that around three or four in ten patients diagnosed as unconscious in fact show signs of awareness. There are at least four different states of severe brain damage we observe: coma, vegetative state, minimally conscious state (clearly discernible evidence of consciousness of self or environment) and locked-in-syndrome (fully conscious but paralysed). Especially the demarcation of vegetative and minimally conscious states is very difficult for differentiating. fMRI is helping us to understand the brain function and cognitive processes.

Functional magnetic resonance imaging (fMRI) shows the function of the brain in contrast to MRI which displays structural images. The haemoglobin in the red blood cells transport oxygen to the brain and can be used to make scans with the help of a magnet field. So actually, we measure the blood oxygen level, also called haemodynamics, indirectly to obtain information about the activity of neurons in special parts of the brain. But fMRI can do more: The technique enables us to communicate with the patient. We can ask him questions by telling him to think of playing tennis if he wants to say “yes”, or imaging to walk through his home if he wants to say “no”. We then directly see the reaction of brain activity in specific areas on the monitor. It permit us to give back autonomy to the person to decide for himself if, for example, he wants life-prolonging measures.

‘In functional neurological imaging fMRI replaces PET scanning, which requires radiotracers injection. With fMRI you can possibly acquire more scans and a better resolution in time and space. According to time, tools to measure electrical activity from the scalp are even more precise – these would be EEG and Magnetoencephalography (MEG). That’s why the gold standard is to record simultaneously both: EEG during fMRI. The present challenge is that MRI needs a very high magnetic field – at the moment 3-Tesla, but we can move up to 7T, or even higher.

Unfortunately the signals of both tools distort each other. So the EEG electrodes must be shielded to avoid image interference and burning at the patient.’

Insertion or removal of electrodes must be shielded to avoid image interference and burning at the patient.

Consequently, with regard to stroke the Mannheim-Heidelberg Stroke Study arrives at very similar conclusions in a large-scale international study, which in 2005 showed the risk of myocardial infarction to be significantly that kind of fat mass that causes free fatty acids, cytokines and hormones to enter the portal circulation and thus increases the risk of metabolic syndrome or diabetes.

But why is abdominal fat so dangerous? Is it a certain type of fat that builds up around the abdomen, the so-called visceral fatty tissue that determines abdominal girth? “Intra-abdominal fat mass has crucial implications for a body’s fat and carbohydrate metabolism since it is particularly that kind of fat mass that causes free fatty acids, cytokines and hormones to enter the portal circulation and thus increases the risk of metabolic syndrome or diabetes.”

Abdominal girth identifies visceral (abdominal) fat mass independent of body height and physique. Even more: our study clearly shows that the BMI is not an independent stroke risk factor,’ Dr Back emphasised.

The analysis of our data demonstrated that, after adjustment for factors such as hypertension, smoking, physical inactivity, or diabetes, pathological abdominal girth was the sole indicator for increased risk of stroke, with the risk being four to seven times higher in women and in general slightly more at risk than men.’

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Consequently, with regard to stroke the Mannheim-Heidelberg Stroke Study arrives at very similar conclusions in a large-scale international study, which in 2005 showed the risk of myocardial infarction to be associated with abdominal adipositas.

‘Adipositas – both in children and in adults – will become one of the major health issues,’ Dr Back prophesised. ‘The number of people in industrialised countries that develop a metabolic syndrome is increasing steadily. We should therefore expect the number of patients with a highly unfavourable vascular risk profile to skyrocket over the coming decades. We urgently require additional studies that not only explore the association between abdominal girth and increased stroke risk but that also look at how the treatment of adipositas, particularly abdominal weight loss, decreases the risk of stroke and myocardial infarction.’

Presently we have no direct treatments to help the brain recover from traumatic or anoxic cases, because first we would have to know what gives rise to recovery of consciousness. We know that the vegetative state can be permanent or transitory and that the longer someone stays unconscious the smaller their chance of recovery. Retrospective studies indicate that patients taking specific drugs apparently recover more often. In the future, fMRI could help to measure the effects of drugs testing directly to the central nervous system.
Поликлиники в Великобритании?

Д-р Чаан Нагпоп

В Англии взаимоотношения между врачами общей практики и больницами в настоящее время претерпевают период некоторой нестабильности. Это положение связано с проблемами в сфере здравоохранения, в том числе с высокими уровнями осознания потребности в реформировании поликлиник в качестве важной составляющей системы здравоохранения, а также некоторых других причин.

Однако, несмотря на все трудности, начавшиеся в период переориентации здравоохранения, некоторые важные моменты все же были подчеркнуты.

Во-первых, были представлены Министром здравоохранения предложения, которые должны были оказывать существенное влияние на производство в сфере здравоохранения. Было предложено создание системы, включающей в себя 150 медицинских центров, которые будут обслуживать все основные медицинские услуги.

Во-вторых, в отчете о деятельности Министерства здравоохранения была предоставлена убедительная информация о том, каким образом система здравоохранения может быть ликвидирована для обеспечения более эффективной работы.

В-третьих, были выдвинуты предложения по улучшению координации работы в сфере здравоохранения путем разработки оптимальных планов действий в различных сценариях. Эти планы включают разработку эффективных структур для обеспечения координации работы между разными службами здравоохранения.

В-четвертых, были определены первостепенные требования, которые должны быть выполнены для упорядочения и оптимизации работы в сфере здравоохранения.

В целом, можно сказать, что представленные предложения и рекомендации должны способствовать улучшению работы в сфере здравоохранения и обеспечить более эффективное обслуживание пациентов.
Кардиология

Цель ‘euHeart’ – персонализация диагностики и лечения кардиоваскулярных заболеваний.

Компания Royal Philips Electronics возглавит проект «Евро-сердце» (‘euHeart’). Это новый исследовательский проект, финансируемый Евросоюзом. Его целью является совершенствование диагностики, терапевтического планирования и лечения сердечно-сосудистых заболеваний. Проект «Евро-сердце» выделяет в качестве основной цели исследований диагностику и лечение сердечных заболеваний, таких как: сердечная недостаточность, ишемическая болезнь сердца, аритмии, врожденные пороки сердца. Он дополняет тем самым заявленный недавно проект «Сердечный Цикл» (HeartCycle), также возглавляемый данной фирмой. Проект «Сердечный Цикл» концентрирует усилия на организации долговременного лечения пациентов с хроническими заболеваниями сердца. Созданный недавно консорциум ‘euHeart’ ставит целью улучшить диагностику, терапевтическое планирование и лечение сердечно-сосудистых заболеваний путем создания компьютерных моделей нормального, а также обусловленного болезнью функционирования сердца и аорт индивидуально для каждого пациента. Более подробную информацию об этом научном проекте вы можете прочитать на 1 стр. нашего издания (ESC-Special).

Обмороки - диагностика и терапия

При определении этиологии синкопальных состояний имеет место проблема, какой объем диагностических мероприятий необходим в действительности, и от каких методов обследования можно отказаться. В целях большей оперативности необходимо, по мнению экспертов, концентрироваться на выяснении вопроса – носит ли причина возникновения данных синкопальных состояний кардиогенный характер. Ответ на этот вопрос можно получить относительно легко. Более подробную информацию о диагностике и терапии синкопе Вы можете прочитать на 10 стр. нашего издания (ESC-Special).

Лаборатория & фармакология

OptoLabCard

Испанские исследователи разрабатывают новую лабораторию на чипе, которая позволит осуществлять тесты за 20-30 минут. Используя оптическую диагностическую лабораторную kartochку, эти тесты могут быть воспроизводить гепатит, СПИД, грипп за 20-30 минут. По своей природе тесты будут определять наличие бактерий в продуктах, а также диагностировать некоторые заболевания – рак, гепатит, СПИД, грипп за 20-30 минут. С их помощью можно будет воспроизводить лабораторные реакции в любой час и в любое время. (См. страницы: 9)
Метод будущего – соноэластография

Проведение щадящих нервных операций простатэктомии является специализацией частной клиники Мартини, расположенной на территории Университетской клиники Эппендорф (УКЕ) в Гамбурге. Эта клиника по праву занимает одно из первых мест в мире по количеству проведенных операций. В области диагностики специалисты на Эльбье также занимают лидирующие позиции; они, одни из немногих в Европе, используют в настоящее время соноэластографию в качестве дополнительного инструмента для более точной и надёжной идентификации карциномы простаты.

Конечно, это делается для того, чтобы повысить шансы пациента на выздоровление. В беседе с EUROPEAN HOSPITAL (ЕH) главный врач и руководитель отделения диагностики клиники Мартини д-р Георг Саломон (ГС) рассказывает о накопленном опыте в применении данного метода.

Во-первых, тем, что данный метод не находит интерьера со стороны производителей медицинской техники. Много лет назад были сделаны многообещающие разработки, которые затем, однако, не были реализованы.

В настоящее время, несмотря на известную единственность системы на рынке, дающую необходимый диапазон возможностей для применения на практике, производит фирма Хитанци. Мы констатируем, тем не менее, что коммерческая отрасль в данном сегменте рынка началась движение и другие фирмы стали привлекать внимание к соноэластографии. Это, в общем, однозначно говорит в её пользу. Правда, с этим проявляется тенденция со стороны медицинских производителей медицинской техники на соноэластографию в качестве дополнительного обследования, а это, в свою очередь, приводит к тому, что мы взаимодействуем с большим объёмом данных, который позволит нам развивать и улучшать данный метод.

В общем и целом, я полагаю, что в будущем соноэластография будет хорошей дополнительной возможностью для улучшения диагностики карциномы простаты.

Как мы используем ультразвуковую диагностику – недостаточно, или слишком часто?

Визуализация с помощью ультразвуковой диагностики является очень эффективным методом, но, как правило, слишком мало используется. Данный метод имеет много превратных сторон.

В целях компенсации снижения окупаемости ультразвуковых исследований разработаны множественные方法а увеличивать их применение, и, зачастую, сверхмеры. Это само по себе привело к снижению окупаемости. Следует учитывать, что качественное ультразвуковое обследование требует времени. Однако специалисты, констатировавшие, что хорошие ультразвуковые исследования уже не считаются производителями медицинской техники приоритетными, одновременно указывали на необходимость решения вопросов окупаемости, а также обеспечивая хорошую квалификацию персонала, осуществляющего ультразвуковые обследования.

При производстве, в свою очередь, – делая новые разработки менее зависимыми от успехов в оценке улучшений, больше внимания уделяя самым современным, удобным, и легко применяемым методам.

Во многих странах ультразвук используют для оценки различного профиля – радиологов, врачи узкой специализации и врачи общей практики. В США проблема окупаемости ультразвуковых обследований была решена по-другому: система сканирования высоко стандартизованных сканирований осуществляют технологии – радиологи, они поддерживают стандартизированные протоколы, для которых потом чётко рассчитывается стоимость услуги. Внешне различие от различного применения ультразвука на местах, где можно создать ведущий метод, что позволит улучшить цифровую визуализацию не использованию в полной мере. Лица, определяющие политику в сфере здравоохранения, а также производители медицинской техники обладают достаточными возможностями для того, чтобы изменить это положение дел.

Поэтому, говоря о себе, – мы можем уже без стеснения расширить возможности для проведения ультразвуковых исследований, а также обеспечивать хорошую квалификацию персонала, осуществляющего ультразвуковые обследования. Потому, что мы можем уже без стеснения расширить возможности для проведения ультразвуковых исследований, а также обеспечивать хорошую квалификацию персонала, осуществляющего ультразвуковые обследования.
ПЭТ/КТ: Предельно точная диагностика рака

Доктор Кристиан Ришке, заведующий центром диагностики в Фрайбурге, рассказывает о преимуществах позитронно-эмиссионной томографии (ПЭТ) в комбинации с компьютерной томографией (КТ) для онкологических пациентов.

Европейская Ассоциация по онкологической терапии (ЕАТО) и международная ассоциация врачей радиологии (ЕАМР) рекомендуют ПЭТ/КТ как стандартный метод диагностики рака. ПЭТ отображает процессы обмена веществ в клетках организма. Пациенты получают молекулу фруктозы низкой степени радиоактивности (FDG), которая накапливается в клетках, где содержится больше энергии. Разница между нормальными и раковыми клетками может быть использована для обнаружения опухолей.

В глобальном масштабе аутсорсинг лабораторных услуг в области медицины и биотехнологий является важным фактором. В рамках этой глобальной сети, только одна из таких компаний, "Чилтерн Фармасьютикалз", к 2010 году достигнет в этой области 1-1,5 миллиардов долларов. В основе этого процента от указанного количества на принципах контрактов, аутсорсинга, здесь имеется тенденция к росту. Аутсорсинг клинических исследований является активной тенденцией в данной области. Лидером рынка по аутсорсингу лабораторных услуг, в том числе: соблюдение права пациента на конфиденциальность, барьеры в виде чьего-то рода регламентаций. Не прекращаются также дебаты о качестве медицинских услуг, о минимизации ошибок при передаче результатов. Отметим также, что в медицинских учреждениях все больше применяется аутсорсинг лабораторных услуг.

В системе предоставления медицинских услуг на очереди? Европейская Ассоциация по онкологической терапии (ЕАТО) и международная ассоциация врачей радиологии (ЕАМР) рекомендуют ПЭТ/КТ как стандартный метод диагностики рака. ПЭТ отображает процессы обмена веществ в клетках организма. Пациенты получают молекулу фруктозы низкой степени радиоактивности (FDG), которая накапливается в клетках, где содержится больше энергии. Разница между нормальными и раковыми клетками может быть использована для обнаружения опухолей.
The seca 959, a chair scale, has been designed by seca gmbh & co. kg, Hamburg, Germany, with input from experts, to accommodate patients with mobility or other problems. It is not only easy for patients and nurses to use, but, as the firm explains, ‘… practically eliminates body contact, which patients of Islamic faith in particular find unpleasant and try to avoid.’

The adjustable footrests are unique: they can be turned to the side or tucked completely under the chair seat, giving a patient plenty of foot room and a sure foothold when taking a seat. ‘The adjustable footrests also eliminate the danger of the caregiver’s banging a patient’s Achilles tendon or ankle when wheeling the chair scale into place from behind a patient.’ Each footrest can also be adjusted separately, allowing one foot at a time to be placed on the supports after the patient is seated.

In addition, the swivel armrests can be moved aside when a patient is being transferred from a bed or wheelchair on to the chair scale. Nurses who tend patients with hemiplegia (paralysis on one side of the body) and hemiparesis (partial paralysis of one side of the body) appreciate this labour-saving function, seca explains.

The seca 959 (Class III calibrated) weighs patients up to 150 kilograms in 50-gram increments and from 200 kilograms with a graduation of 100 grams. The operating and display element has easy-to-read 20 mm high LCD figures. The ‘hold’ function keeps the measured weight on display after the patient has left the scale. The caregiver can attend to the patient first and then note the weight.

The model also provides a body mass index (BMI) function. The patient’s height is entered, weight determined and, at the touch of a button, the BMI is calculated.

Though small and lightweight, the battery operated scale is robust and also highly manoeuvrable even in tight spaces.

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Working with advanced pain management techniques should be second nature to you, and you will be an efficient performer in theatre and a strong advocate for our organisation. At the same time, you will be keen to enhance clinical pathways, capable of building productive relationships with colleagues, and happy to participate in general management and our out-of-hours on-call rota.

For an application form and job description please visit www.uk-sh.co.uk or call +44 174 933 3695 quoting reference SMT/OS017 for the Consultant Orthopaedic Surgeons positions and SMT/CRO16 for the Consultant Radiologist position.

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Fully registered with the GMC, you will bring wide experience of general and cross sectional imaging, ideally backed by considerable expertise in musculoskeletal radiology. Above all, you must be able to support our existing Consultant Radiologist in managing a substantial throughput of patients – in 2007, we conducted 1,300 MRI and 3,730 US scans, plus 8,000 plain X-rays.

The scales also have integral wheels for easy transportation.

Detecto points out that it offers a complete line of ProDoc scales, so multiple configurations are available. ‘The ProDoc’s feature medical-grade accuracy and are versatile enough to be used in exam rooms or physician offices for medical use, or in homes or fitness centres for healthcare measurements.’

The Cardinal Detecto range will be on show at MEDICA 2009 in Dusseldorf, Germany, this November. Hall 12 – 8.34
Dräger celebrates half a century of Vapor care

century, when new technologies and alternative liquid anaesthetics arrived, stimulating demand for a new and precise dosing technique. In 1958 Dräger produced Vapor, a calibrated dosing device that could be attached to the anaesthesia equipment that supplies fresh gas. Vapor adds the anaesthesia dose set by the anaesthetist to the fresh equipment that supplies fresh gas. Vapor adds the anaesthesia dose set by the anaesthetist to the fresh gas. Although the dosing (bypass) mechanism used by the Vapor has changed very little, the device’s technology is continuously optimised, the firm points out.

Impressively, Vapor never needs recalibration. Special stainless steel and glass elements in the device ensure a long service life, resistance to alteration, and pressure and temperature compensation, the manufacturer points out. Other features include a bypass mechanism that is adjusted down to micrometer level, and the dosage area is free of aluminium, which may carry the anesthetic.

Transportable and standard bottle refills

Today’s five main types of liquid anaesthetics – sevoflurane, desflurane, enfurane, halothane and isoflurane – are used in various ways, according to clinical indication, but each needs its own Vapor. This means that the vaporiser must be moved, in a sealed state, between hospital departments. To make this easier, Dräger integrated a patented transport setting, a hand wheel, and this hermetically seals the vaporiser (as the term to the device had to be emptied each time). ‘Even if only a minute of aesthetic

remains in Vapor, the vaporizer’s 300 ml containers should standard 250 ml refills, thus virtually eliminating wastage,’ explains Dräger.

Special Applications

When a patient needs to be sedated for an MRI scan, Vapor can be used in conjunction with a Fabius magnetic resonance tomography (MRT) system. Vapor is interoperable with 1.5 tesla and 3-T MRT systems. The Vapor output remains stable within physician-defined anaesthesia dosage at temperatures ranging from 10 to 40°C. This is particularly important for bone surgery, where the operating theatre temperature of 15°C is maintained, or for surgery on burn victims, for which the theatre temperature must be raised, Dräger points out.

In 1958 Dräger produced Vapor, a new and precise dosing technique. For half a century, day after day, Dräger’s Vapor has saved lives. Yet no patient knows this. Only the anaesthetist and surgical team can be fully aware of its value in keeping their patients unconscious and pain free during surgery. Dräger reports proudly, in the 50th year of Vapor’s service.

Delivering anaesthetics could never be exact until the mid-20th century. To avoid unnecessary stress for patients, traditional anaesthetists and physicians have gone to great lengths to measure and understand the effects of anaesthetics. In an effort to standardise this process, in 1958 Dräger introduced the Vapor, a precise dosing device that could be used to ensure a consistent delivery of anaesthetics. This innovation revolutionised the field of anaesthesiology, providing a safer and more reliable method of delivering anaesthetics to patients. Today’s Vapor systems continue to build on this legacy, offering modern clinicians the tools they need to optimise patient care and achieve the best possible outcomes.

FRENCH TO INFECTIOLOGY-RELATED HIV TESTING

Mexico – During the XVII International AIDS Conference held in Mexico City this August, keynote speakers from Europe, Latin America and Africa addressed issues including the importance of early detection of HIV infection, the relevance of rapid testing for epidemiology studies, the use of Dry Blood Spots (DBS) for routine viral-load testing in remote areas, and the experience of South Africa in routine high-volume viral-load testing.

One of the latest advances in viral-load monitoring and our most recent developments is the French firm bioMérieux, which organised the integrated symposium ‘Viral-load monitoring and our most relevant issues in the diagnostic strategies, total management of quality and other advances in the clinical laboratory. The scientific programme will include a focus on the relevance of testing clinical outcomes as well as standardisation. ‘Romanian standardisation efforts have already included the analytical aspects of clinical laboratory,’ say Professor Gheorghe Benga, RSLM President, and Dr Manole Colocjaru, Congress President, who expect about 500 delegates ‘from every corner of the world’ to attend this year’s event. The 7th Romanian Society of Laboratory Medicine Congress 2008, held under the auspices IFCC, EFCC, BCLF, WASPaLM and the patronage of the Romanian Academy of Medical Sciences, will be fully aware of its value in keeping patients unconscious and pain free during surgery. Dräger reports proudly, in the 50th year of Vapor’s service.

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FRENCH TO INFECTIOLOGY-RELATED HIV TESTING

Mexico – During the XVII International AIDS Conference held in Mexico City this August, keynote speakers from Europe, Latin America and Africa addressed issues including the importance of early detection of HIV infection, the relevance of rapid testing for epidemiology studies, the use of Dry Blood Spots (DBS) for routine viral-load testing in remote areas, and the experience of South Africa in routine high-volume viral-load testing.

One of the latest advances in viral-load monitoring and our most recent developments is the French firm bioMérieux, which organised the integrated symposium ‘Viral-load monitoring and our most relevant issues in the diagnostic strategies, total management of quality and other advances in the clinical laboratory. The scientific programme will include a focus on the relevance of testing clinical outcomes as well as standardisation. ‘Romanian standardisation efforts have already included the analytical aspects of clinical laboratory,’ say Professor Gheorghe Benga, RSLM President, and Dr Manole Colocjaru, Congress President, who expect about 500 delegates ‘from every corner of the world’ to attend this year’s event. The 7th Romanian Society of Laboratory Medicine Congress 2008, held under the auspices IFCC, EFCC, BCLF, WASPaLM and the patronage of the Romanian Academy of Medical Sciences, will be fully aware of its value in keeping patients unconscious and pain free during surgery. Dräger reports proudly, in the 50th year of Vapor’s service.

Dräger integrated a patented transport setting, a hand wheel, and this hermetically seals the vaporiser (as the term to the device had to be emptied each time). ‘Even if only a minute of aesthetic

remains in Vapor, the vaporizer’s 300 ml containers should standard 250 ml refills, thus virtually eliminating wastage,’ explains Dräger.

Special Applications

When a patient needs to be sedated for an MRI scan, Vapor can be used in conjunction with a Fabius magnetic resonance tomography (MRT) system. Vapor is interoperable with 1.5 tesla and 3-T MRT systems. The Vapor output remains stable within physician-defined anaesthesia dosage at temperatures ranging from 10 to 40°C. This is particularly important for bone surgery, where the operating theatre temperature of 15°C is maintained, or for surgery on burn victims, for which the theatre temperature must be raised, Dräger points out.

In 1958 Dräger produced Vapor, a new and precise dosing technique. For half a century, day after day, Dräger’s Vapor has saved lives. Yet no patient knows this. Only the anaesthetist and surgical team can be fully aware of its value in keeping their patients unconscious and pain free during surgery. Dräger reports proudly, in the 50th year of Vapor’s service.

Delivering anaesthetics could never be exact until the mid-20th century. To avoid unnecessary stress for patients, traditional anaesthetists and physicians have gone to great lengths to measure and understand the effects of anaesthetics. In an effort to standardise this process, in 1958 Dräger introduced the Vapor, a precise dosing device that could be used to ensure a consistent delivery of anaesthetics. This innovation revolutionised the field of anaesthesiology, providing a safer and more reliable method of delivering anaesthetics to patients. Today’s Vapor systems continue to build on this legacy, offering modern clinicians the tools they need to optimise patient care and achieve the best possible outcomes.
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