

Healthcare Sector

Erlangen, August 25th, 2010

ESC 2010

Perspectives of the heart

Siemens introduces new solutions for the diagnosis and therapy of heart diseases

At the Congress of the European Society of Cardiology (ESC) 2010, Siemens Healthcare presents the company's innovative solutions for cardiology that provide higher quality of care and contribute at the same time to reducing costs in healthcare. The objective is to diagnose heart diseases more effectively as well as earlier but also to enable new therapies that are more patient-sparing and accelerate treatment. Examples of heart disease include heart failure and coronary artery disease (CAD) - diseases that are increasing among people. In the advanced heart cath lab, innovative Siemens technology is already used today to replace a growing number of heart valves with a minimally invasive catheter procedure. This and other new procedures are applied primarily in hybrid ORs that combine the advantages of a cath lab with those of an operating theater. In addition to medical imaging and lab diagnostics, the complete Siemens portfolio for cardiology includes cardiovascular IT solutions together with customer-specific services.

Currently, approximately 14 million people in Europe suffer from heart failure. It is estimated that this number will increase to about 30 million¹ by 2020. For many patients, the underlying cause is coronary artery disease (CAD), considered the most widespread disease in industrial nations. More than half of all people die from cardiovascular complications – one third of these suffer a heart attack. New medical approaches and imaging methods such as echocardiography, magnetic resonance imaging (MRI), nuclear medicine, and computed tomography (CT) support faster diagnoses as well as more effective and earlier therapies. In the long term, useful applications of new technologies save expenditures in the healthcare sector and provide patients with faster diagnosis and therapy through further improved, more gentle methods.

¹ Source: Shape (Study on Heart failure Awareness and Perception in Europe); www.heartfailure-europe.com

At the ESC, Siemens is holding a number of satellite symposia about the newest treatment methods in cardiology. The focus is on the therapy of patients suffering from heart failure, on people with acute chest pain, and patients with severe aortic valve stenosis. Speakers from Europe and the U.S. will present their audience with these topics during lectures and discussions. Under www.siemens.com/esc, interviews with leading cardiologists as well as video tapes of the satellite symposia will be available immediately after the congress.

As in the past, visitors of the congress have the opportunity to attend practical training sessions in the form of hands-on tutorials for the new Siemens technologies. These are performed by clinical experts and offered for typical reports in cardiovascular CT, MRI, echocardiography and interventional cardiology.

Innovations at the ESC

Latest applications for CT and low-dose scanning in clinical routine with Dual-Source CT

Siemens will show new applications to reduce radiation dose and contrast agent in the field of computed tomography, focusing on Dual-Source CT. Special emphasis will also be devoted to the planning of TAVI (Transcatheter Aortic Valve Implantation) procedures with the CT Scanner Somatom Definition Flash and the imaging software syngo.via from Siemens.

3D in angiography: New imaging software from Siemens simplifies workflow for minimally invasive heart valve implantation

Siemens will present a new image processing software that helps cardiologists and cardiac surgeons prepare and perform transcatheter aortic valve implantations (TAVI): Syngo Aortic ValveGuide automatically reconstructs a 3D representation of the aortic root from CT-like cross-sectional images acquired with the angiography system. The software selects anatomical landmarks as the coronary ostia, for instance, and overlays the 3D image with two-dimensional images acquired during live fluoroscopy. That way, the physician obtains real-time, three-dimensional guidance in the patient's body while navigating the new valve to its intended location.

Siemens demonstrates improved efficiency in routine echocardiography exams

Siemens announces the 1.5 release of its Acuson SC2000 volume imaging ultrasound system at the congress of the ESC. Featuring a number of innovative workflow solutions, the system offers a complete 2D and volume echocardiography system that – on top of excellent imaging performance – offers one-of-a-kind workflow improvements in conventional and real-time volumetric echocardiography.

Additional highlights at the ESC

Magnetic Resonance (MR) shows innovations for a new standard of care

The Siemens innovations introduced at the ESC for cardiac MR examinations help implement easier and faster care for patients with acute and chronic cardiac disease, opening a potentially new standard of care: To reduce the complexity of cardiac MR examinations and increase productivity, Siemens developed the Dot (Day optimizing throughput) engine. Dot supplements Tim (Total imaging matrix) and provides for greater image consistency, improves user friendliness, and shortens examinations, resulting in higher productivity and safety. Per image and text, the new technology leads the examiner step-by-step through complex examinations as well. Examinations can be adjusted to the respective patients with a few mouse clicks. Standardized long and short-axis slices are generated, for example, based on anatomical landmarks and are available as parameters for subsequent sequences. The combination of Tim and Dot allow for individualized patient treatment and considerably improve the workflows of cardiac MRI examinations.

Both technologies are integrated in the two new, recently introduced MR systems, Magnetom Aera (1.5 tesla) and Magnetom Skyra (3 tesla).

Nuclear cardiology

Siemens solutions for Nuclear Cardiology provide the cardiologist with techniques that facilitate detection of beginning or already manifested coronary artery disease including myocardial infarct and the examinations of abnormalities in global as well as local wall motion.

Siemens will highlight cardiology solutions in diagnostic SPECT-CT and PET-CT imaging with IQ•SPECT technology, and five-minute SPECT-CT scans with available calcium scoring, and syngo Dynamic PET with Myocardial Blood Flow, a new cardiac imaging software application for the industry-leading Biograph PET-CT scanners. Syngo Dynamic PET with Myocardial Blood Flow offers a new method for quantitatively evaluating the extent of ischemia via high-performance PET-CT imaging and advanced applications. It works by enabling a more definitive measurement of myocardial blood flow during PET perfusion studies compared to regular myocardial perfusion studies. This additional information may have significant impact on the diagnosis of patients with advanced coronary artery disease (CAD) and specifically, those patients with multi-vessel disease, or those who are asymptomatic.

Traditional applications in nuclear medicine such as myocardial perfusion are becoming even more effective with the addition of the diagnostic CT in Siemens Symbia TruePoint SPECT-CT.

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Additionally, IQ•SPECT raises the bar by enabling a comprehensive cardiac evaluation including perfusion, organ-centric magnification, attenuation correction, and calcium scoring in just five minutes. The quick, low-dose spiral CT scan that is currently used to obtain attenuation correction information can also be used as a critical element in the cardiac work-up to screen patients for coronary artery disease. Calcium scoring is an independent indicator of prognosis in CAD and in combination with SPECT may help improve diagnostic confidence.

Cardiovascular IT solutions

Siemens Cardiovascular IT Solutions optimize clinical workflows through integration of imaging and information, and are designed to make healthcare faster, better, and more cost-effective. With syngo Dynamics, Siemens' multi-modality image viewing and archiving system, knowledge-driven and clinically derived evidence-based structured reporting supports clinical decisions.

The new syngo Dynamics Portal provides customers with the ability to provide fast, high quality image and report access through the web and will automatically make all new cases – both images and reports – available on the web within minutes of completion. Using Microsoft Silverlight, syngo Dynamics Portal users now receive thumbnails, studies, and reports within seconds. Designed to accommodate modern web deployment strategies, syngo Dynamics Portal gives the customer the ability to keep the syngo Dynamics server behind hospital fire walls while deploying the web site itself on a controlled domain.

Syngo Dynamics version 9.0 will introduce new administrative tools to enhance the clinical experience, will support additional reductions in report turnaround time, offer real time display of Key Performance Indicators (KPIs), and more.

Version 9.0 will also introduce syngo Dynamics Portal Reporting, which provides reporting physicians the ability to remotely access studies, report study findings, sign-off and distribute reports.

Finally, Siemens will demonstrate how its latest imaging software for multimodality reading of clinical cases, syngo.via, places special focus on reading efficiency through automated case preparation and structured case navigation across multiple specialties, including cardiology. It's the kind of integration that can only be delivered by Siemens, a trendsetter in medical imaging, laboratory diagnostics, and medical information technology. It's more than just information or technology; it's about efficiently enabling the best possible patient care.

New consultation model for cardiology

The new consultation approach "Act on Acute Coronary Syndrome" of Siemens is showing customers new ways in evaluating and improving hospital-specific structures and processes. It is based on a systematic model consisting of a data pool that includes medical guidelines, current scientific results, best practice analyses, and profound clinical expertise. Models regarding the level of process maturity have been developed for the complex events of a specific disease - in this case, for acute coronary syndrome. With its comparable use in healthcare Siemens has developed a completely new consultation model in healthcare which opens up new possibilities. The objective of the new approach is to improve both process quality and guideline adherence in hospitals and, as a result, the quality of medical care.

Lab diagnostics in cardiology: troponin test and NT-proBNP/BNP test

Today, cardiac troponins are the preferred blood markers for diagnosing myocardial infarction or acute coronary syndrome. Siemens was the first company to develop a fully automatic, high-precision and highly sensitive troponin test ("TnI Ultra"), which fulfilled the stringent requirements of the ESC and ACC (European Society of Cardiology/American College of Cardiology). The advantages of the Siemens test: It allows an earlier and better identification of infarct patients.

Patients suffering from heart failure exhibit elevated levels of BNP (B-type natriuretic peptide). Heart failure can be differentiated from other disorders with similar symptoms very quickly by performing a BNP analysis. A reliable and cost-effective blood analysis tool for diagnosing heart failure is thus available to physicians in addition to imaging techniques. Siemens also offers its NT-proBNP/BNP assays on all analyzing systems belonging to the Immulite, Dimension, and Advia Centaur product families. In addition to imaging methods, physicians are provided with reliable and cost-effective auxiliary tools for the diagnosis of heart failure.

The **Siemens Healthcare Sector** is one of the world's largest suppliers to the healthcare industry and a trendsetter in medical imaging, laboratory diagnostics, medical information technology and hearing aids. Siemens offers its customers products and solutions for the entire range of patient care from a single source – from prevention and early detection to diagnosis, and on to treatment and aftercare. By optimizing clinical workflows for the most common diseases, Siemens also makes healthcare faster, better and more cost-effective. Siemens Healthcare employs some 48,000 employees worldwide and operates around the world. In fiscal year 2009 (to September 30), the Sector posted revenue of 11.9 billion euros and profit of around 1.5 billion euros. For further information please visit: www.siemens.com/healthcare.

The here mentioned products/features are not commercially available in all countries. Due to regulatory reasons its future availability in any country cannot be guaranteed. Please contact your local Siemens organization for further details. The outcomes achieved by the Siemens customers described herein were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist, e.g., hospital size, case mix, level of IT adoption, there can be no guarantee that others will achieve the same results.

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