RSNA 2017 in Chicago: South Building, Hall A, Booth 1937

Nexaris Therapy Suites supporting precision medicine by providing direct access to MR, CT and angiography imaging

- Nexaris Angio-CT with Instant Fusion\(^1\) for angiography and CT imaging in interventional radiology
- Nexaris Angio-MR-CT\(^2\) with Pilot technology\(^3\) for combined use of intraoperative imaging in surgical procedures
- Nexaris Therapy Suites can be installed as a single or multi-room solution, depending on customer requirements

Siemens Healthineers has developed nexaris Therapy Suite to better integrate multi-modal imaging in surgery and interventional radiology. They provide support for precise diagnostics, intraoperative real-time imaging and direct check-up of results. Clinical workflows can be made more efficient, more convenient and safe for the patient. Siemens Healthineers introduces nexaris Therapy Suites to a global audience for the first time at this year’s Annual Meeting of the Radiological Society of North America (RSNA) in Chicago, USA.

Combining angiography and CT imaging using nexaris Angio-CT

With Instant Fusion\(^2\), the angiography and CT images are based on a common system of coordinates for the first time, so nexaris Angio-CT offers an automated overlay of image information. "Seamless access and quick switching between angiography system and CT scanner facilitate a faster and more precise treatment for combined procedures such as tumor ablation and tumor embolization. With the Instant fusion technology based on the first common coordinate system in a hybrid suite, the overlay of CT images onto live fluoroscopy images, make manual time-consuming image fusion a thing of the past. And since the image registration does no longer require additional imaging this valuable information ca be provided without additional radiation dose", explains Michael Scheuering, Head of the Business Line Interventional Radiology at Siemens Healthineers.

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addition, patient details need to be recorded only once, and the treating radiologist can then access them on both systems. Both modalities can be operated from just a single location in the control room.

**Two-room solution for optimum system capacity utilization**

Somatom CT Sliding Gantry systems are mounted on rails up to 12 meters long, which can be used to take them up close to the patient when required, or to make space for the ceiling-mounted Artis angiography system. The system can also be moved towards a second patient table in an adjacent room that is then partitioned off, to enable diagnostic or interventional procedures to be performed using the CT system only while the angiography system can be used independently for routine examinations that do not require an Angio-CT. This two-room solution optimizes system capacity utilization. If required, nexaris Angio-CT can also be expanded to include the wireless Acuson Freestyle ultrasound system, to make access to arteries easier, for example. The ultrasound images can then be displayed on-screen alongside the images from the Angio-CT and directly compared.

**Nexaris Angio-CT especially for procedures in interventional radiology**

Nexaris Angio-CT makes interventional oncology easier, e.g. for the combined ablation and embolization of a liver tumor. With the standard procedure, the patient must be moved back and forth between the angiography system and the CT as separate treatment procedures, whereas with the nexaris Angio-CT, all treatment stages, from path planning to tumor embolization using angiography, and ablation with CT—i.e. surgically removing the tumor—take place in a single suite, with no need to move the patient. Nexaris Angio-CT also makes handling of polytrauma patients easier. As soon as an internal bleeding is detected with CT, the site of bleeding can be catheterized directly using the angiography system. “In the setting of blunt trauma we can immediately diagnose internal bleeding with CT, allowing us to quickly stabilize the patient with angiography and transcatheter embolization, potentially saving lives,” comments Dr. Mark Wilson, Chief of Interventional Radiology, Zuckerberg San Francisco General Hospital.

**Intraoperative Imaging with MR, CT and angiography in surgery**

In the area of surgical procedures, nexaris Angio-MR-CT can be used to combine the robot-supported angiography system Artis pheno, the MR systems Magnetom Aera and Skyra,
and Somatom CT Sliding Gantry systems to form a multi-room solution. In this case, too, to avoid the laborious and risky task of moving the patient between the different modalities, Siemens Healthineers has worked together with its strategic partner Getinge to develop the Pilot transfer solution. If, for example, the patient is being treated using the angiography system, he/she will lie on the Maquet Magnus table, which enables the best possible imaging and patient positioning. If MR imaging is required during the procedure, the Maquet Magnus operating table gets connected with the MR-compatible Combi Dockable Table, using docking adapters. The transfer board is located below the surface of the Maquet table. It is made of Kevlar, a material compatible with MR and X-ray imaging. This base can be used to slide the patient onto the MR table without having to change treatment position. The patient can then be moved to the MR room, where imaging is performed using the Magnetom Aera, a 1.5-Tesla system, or the Magnetom Skyra, a 3.0-Tesla system for MR imaging.

**Sliding Gantry CT for CT imaging in the hybrid OR**

For surgical use, nexaris Angio-MR-CT includes both MR and angiography imaging, as well as imaging using the CT system, which is set up on rails in exactly the same way as the two-room solution for interventional radiology. Because the Maquet table used with the Artis pheno can also be used for CT examinations, there is no need to move the patient in this case. As soon as necessary, the Artis pheno can be removed and the sliding gantry for the CT system drawn up to the table, to enable CT images to be taken during surgery.

"These multi-modality imaging suites will be the laboratory of the future", Prof. Lee Swanström of the Institut de Chirurgie guidée par l'Image (IHU) in Straßburg explains. To ensure the best possible system capacity utilization, all of the above systems can also be used individually: MR and CT for diagnostic examinations and Artis pheno in the hybrid OR for purely angiography-driven intervention.

**First intraoperative whole-body MR images with the nexaris Angio-MR-CT**

Nexaris Angio-MR-CT offers benefits for complete tumor resection, for example in neurosurgery. Using intraoperative imaging, surgeons can determine immediately if there is residual tumor tissue or if they need to adapt the chosen treatment approach. On top of that nexaris Angio-MR-CT makes it possible for the first time to perform MR imaging of the whole body at any time while surgery is in progress, with no need to move the patient. Not just neurosurgeons benefit from the additional representation of the tissue provided by MR
imaging, but also visceral surgeons, for example, performing resections and ablations in the abdomen. It has the potential to have a critical influence on the treatment process.

1 Instant Fusion’s current FDA approval status is currently “510k pending”.
2 The products/features (here mentioned) are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Further details are available from the local Siemens organizations.
3 The information shown herein refers to products of 3rd party manufacturer’s and thus are in their regulatory responsibility. Please contact the 3rd party manufacturer for further information.

This press release and press pictures are available at www.siemens.com/press/PR2017110090HCEN.


Contact for journalists
Sarah Hermanns
Phone: +49 9131 84-5337; E-mail: Sarah.Hermanns@siemens-healthineers.com

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In fiscal 2017, which ended on September 30, 2017, Siemens Healthineers generated revenue of €13.8 billion and profit of €2.5 billion and has about 48,000 employees worldwide. Further information is available at www.siemens.com/healthineers.