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Somatom Force Makes CT Scans Available to Highly Sensitive Patients

Siemens' new computer tomograph (CT) 'Somatom Force' had its global premiere at Germany's University Medical Centre Mannheim. Within the initial weeks of clinical use at Mannheim's Institute for Clinical Radiology and Nuclear Medicine, the company's third generation of Dual Source computed tomography – CT scanners each with two radiation tubes and detectors – enabled significantly faster and more accurate diagnoses at lower doses.

Providing individualized diagnostic possibilities for highly sensitive patients, this high-end CT can cater for very young patients, the seriously ill, or people suffering from renal insufficiency and obese patients. Professor Stefan Schönberg, Institute Director, explains that the new machine can solve challenges posed by every radiological situation for virtually every patient regardless of their complex age and disease structure, allowing renal insufficiency sufferers to benefit from the significantly reduced contrast medium.

Up to 50% lower radiation doses are required for early detection exams and functional 4D imaging procedures, meaning they reduce the burden on the kidneys and can be utilised on a routine basis for swifter and more informed decision-making process with regards to the choice of tumour therapy for a specific patient. With 20% percent of patients affected by renal insufficiency, iodine containing contrast medium strains the kidneys further and as Walter Märzendorfer, CEO of Computed Tomography and Radiation Oncology at Siemens Healthcare states, the Somatom Force bypasses previous challenges posed by computed tomography.

Lowering of the contrast medium is achieved via the two Vectron X-ray tubes in Somatom Force, which allow for examinations at exceptionally low tube voltages of 70 to 100 kilovolts, and as the contrast-to-noise ratio rises, the amount of contrast medium can be lowered accordingly. This also adds value to treatment control by allowing precise diagnoses for individually tailored treatment.

4D imaging shows the function of organs and vessels next to their morphology, allowing for additional information to be obtained about primary tumors and metastases previously not achievable due to the need for higher doses.
Somatom Force can also be used in cases of the novel but very costly anti-angiogenesis therapies. These inhibit the formation of blood vessels in the tumor through the administration of medication in order to determine effectiveness of the treatment at an early stage. By switching to an alternative therapy, physicians can improve a patient's chances of survival and also ensure costly medication is deployed in a financially viable manner, reducing overall costs. As Professor Schönberg explains, the innovative computer tomography system frees medical imaging from traditional, previous diagnostics.

As demonstrated in the US study on NLST lung cancer screening, mortality rates can be reduced by 20 percent if early lung cancer detection is performed with low- dose CT rather than conventional chest X-rays. With its unprecedented low dose values, the Somatom Force is the optimal early detection tool necessitating just 50% of the previously required dose values thanks to its "Turbo Flash Mode" and the use of two special spectral filters called Selective Photon Shields. These optimise the X-ray spectrum, improving the air/soft-tissue contrast considerably.
PD Dr. Thomas Henzler, Head of Cardio-Thoracic Imaging at the University Medical Centre Mannheim agrees that the Somatom Force eliminates almost all contraindications for computed tomography.

Siemens' latest CT model is also proving advantageous in pulmonary diagnostics due to its quick scan mode ability allowing the entire thorax to be depicted in around one second. Subsequently, there is no need for patients to hold their breath and even high heart rates do not lead to disruptive motion artifacts in clinical images.

Source: Siemens

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