DEPARTMENT OF DIAGNOSTIC AND INTERVENTIONAL RADIOLOGY

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OVERVIEW

Radiology is a medical specialty that employs the clinical and scientific use of imaging methods to both diagnose and treat disease.

Fields of activity of the clinic for diagnostic and interventional radiology:

Diagnostic methods
(all acquired image data are in digital format)

- Radiography (Conventional Radiology)
- Radioscopy (Fluoroscopy)
- Computed Tomography (256-slice CT)
- Magnetic Resonance Imaging (1.5 Tesla - 3.0 Tesla), Non-proton MRI (Helium-3, fluorinated gases)
- Digital Subtraction Angiography (DSA)
- Sonography
- Mammography

Therapy methods
(full spectrum of Interventional Radiology care):

- Balloon dilatation and stent implantation
- Occlusion of blood vessels
- Percutaneous tumor ablation
- Biliary tract interventions
- Biopsies and marking methods
- Percutaneous drainages

Patients treated with methods of interventional radiology which require in-patient monitoring are taken care in the ward of the Department of Radiology (which is used together with the Department of Radiooncology).

General responsibilities and specialties:

- Radiology Information System (Database since 1988)
- Picture-Archiving and Communication System (PACS) (Database since 1998)
- Teleradiology
- Clinical Trial Center Radiology
- Section of Medical Physics
- Section of Pediatric Radiology

HIGHLIGHTS

AREAS OF RESEARCH:

- Lung imaging using MRI and CT
- Interventional vascular and tumor therapy
- IT and image post-processing in radiology
- Innovative MRI techniques
IMPORTANT PUBLICATIONS // MAX. 5


Klebeck R, Ruckes C, Krönfeld K et al. Selective internal radiotherapy (SIRT) versus transarterial chemoembolization (TACE) for the treatment of intrahepatic cholangiocellular carcinoma (CCC): study protocol for a randomized controlled trial. TRIALS. 2014; 15.


FIG. 1: 64-channel cardiac phased array coil for 3T (left), four-chamber view at acceleration factor R= 5(middle), and shot-axis view at R=5 (left) in a male subject (Age=55 years, height=162cm, weight=103kg) using a BSSFp cine sequence (FA/Res/IV/Spin = 57/174/208/334f/339mm/6mm).

FIG. 2: Hepatic angiography during a TACE procedure showing two hypervascular HCC nodules before selective chemoembolization.

FIG. 3: Interventionsal therapy of infraarterial aortic aneurysm by stentgraft placement.

FIG. 4: Research efforts in the field of Pediatric Radiology have contributed to an implementation of radiation-free pretherapeutic MR imaging of chest wall deformities instead of dose-intensive CT scans. The image shows a pectus excavatum deformity with accurately delineable osseous structures in a 14-year-old girl (3D-VIBE sequence). Our results have been published in European Radiology (Lollert A, Funk J, Tietze N et al. Morphologic assessment of thoracic deformities for preoperative evaluation of pectus excavatum by magnetic resonance imaging. Eur Radiol 2015; 25:785-91; published online Oct 2014).

IMPORTANT PROJECTS // MAX. 5

Assessment of Aortic Annulus Size at MD-CT: Influence of Heart Phase and Measurement Method in Patients before TAVI
PROJECT MANAGER: Prof. K. Kreitner, Dr. Y Yang
PROJECT DURATION: 2014-2016

Cardiac magnetic resonance enables diagnosis in 90% of patients with acute chest pain, elevated biomarkers, and unobstructed coronary arteries
PROJECT MANAGER: Prof. K. Kreitner
PROJECT DURATION: 2012-2015

Multichannel coils for MRI of the lung
PROJECT MANAGER: Prof. L. Schreiber
FUNDING: Rhineland-Palatinate Foundation for Innovation. SUM: € 230.096
PROJECT DURATION: 2011-2014

Pretherapeutic MR imaging of pectus excavatum and pectus carinatum chest wall
PROJECT MANAGER: Prof. W Staatz
PROJECT DURATION: 2013-2014

Structured reporting in Radiology
PROJECT MANAGER: Prof. P. Mildnerberger
PROJECT DURATION: 2014-2018