Interventional Radiology

ARTIS pheno lives up to its name

Prof. Vogl is one of the first ARTIS pheno users worldwide. Truly convinced by the benefits of the new system, Prof. Vogl and his team were eager to share initial clinical results after two months of clinical use test.

First use and evaluation of the new ARTIS pheno in the University Hospital Frankfurt, Germany

by Thomas Vogl & Leona Alizadeh

The University Hospital Frankfurt was among the first to perform an interventional treatment on the ARTIS pheno. The system has been in clinical use since October 2016 and already shows great potential for radiological interventions in liver, lung, neck and the pelvic region.

The system provides excellent image quality for the treatment and localizations during TACE (trans-arterial chemo embolization) and TACP (trans-arterial chemo perfusion) - as well as for angiography and angioplasty.

The imaging of vasculature with catheter guided DSA shows a good low contrast image resolution which is needed to display parenchyma like the lung or liver in an adequate quality (see image 1+2 below).

Compared to a previous system that is momentarily operated in parallel, usability and image quality have been considerably improved. Additionally, the ARTIS pheno provides an easier guidance through new programs and operation.

The department is using the new ARTIS pheno for interventions, angiography and chemo-/embolization of cancer in liver, lung, neck as well as in the pelvic region.

The workflow of ARTIS pheno has been improved by the installation of a longer and more flexible c-arm, which allows to access distal areas more easily and faster than before. The table does not have to be moved as much as the previous one and there is more space for the patient to lift his arms over his head for syngo DynaCT. Furthermore, the selection of the presentation of reconstructions and protocols during the intervention feels easier and more natural , even for less experienced colleagues. A faster rotation around the longitudinal axis during syngo DynaCT, which can be used for a very fast high quality 3D overview, can now be performed with higher angular velocity by using a smaller position vector due to a different axis of rotation.

Thus, we are saving time while providing the best possible intervention results for the patients.

The new syngo DynaCT Micro protocol can now be used to show small volumes of interest in full resolution and FOV.

Furthermore, the possibility of directly visualizing 3D PBV runs in the intervention room with colorized images of the metastasis improves the evaluation of embolization and feedback. In our department PBV is

a very important part of the intra-interventional evaluation of the treatment's therapeutic outcome (see image 3).

The radiologist is now able to work on the 3D reconstruction directly at the table with easier access to the reconstruction programs. A new and exclusively for Frankfurt`s department developed 3 second PBV Body protocol reduces motion artifacts and shortens the time in which the patients are not allowed to breathe or move. Even though the number of acquisitions is reduced, the image quality obtained is still excellent (see image 4).

The colored display of the PBV reconstruction is not only a good feedback for the intervening radiologist, but additionally helps to demonstrate the therapies to the patient himself as well as to non-professionals.

Through the easier operating system, the new console, and the antimicrobial surface the infection risk is further decreased.

The ARTIS pheno system provides an improvement in the field of radiological intervention tools, not only because of higher image quality, but also because it improves the workflow and eases the access to the patient, which leads to more patient comfort. The guided options for interventions like needle guidance, 4D reconstruction of vessels or 3D imaging system also increase confidence during interventions – not only for less experienced radiologists – and also allows for a better analysis of the individual characteristics of every patient's anatomy and better documentation of the therapy outcome.

We are now even able to do a live picture transfer of the interventions to congresses and lectures, which opens up big opportunities of innovative teaching methods and demonstrations for students and fellow colleagues in an up to date manner and memorable illustrative way.