



The AlluraClarity is a revolution

Who/where

University Hospital Hradec Králové
Hradec Králové, Czech Republic
Prof. Antonin Krajina M.D.

Challenge

Accurately perform complex neuroradiology procedures with a high level of control and risk management.

Solution

Philips AlluraClarity FD20 biplane X-ray system provides superb image quality and reduces motion artifacts significantly, allowing physicians to perform more complex procedures with improved control. First indications show a decrease in X-ray dose ranging from 50% to 70% depending on the procedure.

Prof. A. Krajina M.D. is one of the leading neuroradiologists in Europe, and has been using Philips AlluraClarity FD20 biplane X-ray system since July 2012. In a few short months, this system has decreased X-ray dose by 50–70% for a range of procedures in his practice. It has also revealed new details of pathology and devices in tortuous cerebral vasculature, allowing physicians to perform more complex procedures with improved control.

With 23 clinical departments, 1,500 beds and an annual volume of about 40,000 patients, the University Hospital in Hradec Králové is one of the leading healthcare facilities in the Czech Republic. It serves a large population of about 1 million residents and is a referral area for patients from across the Czech Republic. The most complicated surgical operations are performed here, and the hospital recently added a new neuroradiology and stroke facility that includes two angiography rooms. This hospital is also an important training center for physicians and other healthcare professionals.

For over twenty years, Prof. Krajina has been performing challenging endovascular and neuroradiology procedures at the University Hospital in Hradec Králové. He performs transjugular intrahepatic portosystemic shunt (TIPS procedures), as well as complex neuroradiology

interventions, such as embolization of the arteriovenous malformations (AVM), and stroke procedures.

To speed up and improve stroke care the facility has placed two new angiography rooms located next to the emergency room. One is equipped with a Philips Allura Xper FD20 monoplane X-ray system and the other recently added a Philips AlluraClarity FD20 biplane X-ray system. The facility chose the AlluraClarity because it represents the most advanced technology for performing challenging neuroradiology interventions.

Decreased X-ray dose by 50–70%

“The AlluraClarity is a revolution,” says Prof. Krajina. “Already after a few months of using the AlluraClarity we saw substantial X-ray dose reductions compared to the Allura Xper FD20 room. Depending on the procedure, the differences may range up to 50–70%.”

PHILIPS



“The AlluraClarity is a revolution”

Prof. Antonin Krajina M.D.

Dose reduction is important for both TIPS and neuro-radiology interventions. “TIPS is one of the highest dose procedures. It usually takes about two hours, and these patients generally have very advanced liver disease. But we also have really young patients who are suffering from Budd-Chiari syndrome, and dose reduction is very important for them.”

“And of course dose reduction is very important for me as a physician, and for all our other medical staff who work in the angio rooms. We spend a lot of hours a day in this room and want to take every precaution.”

During his career, Prof. Krajina has worked on angio systems from all of the leading brands.

This hospital is unique because it has a Philips Allura Xper FD20 X-ray system, which is only two years old, and it is the first location to have the new Philips AlluraClarity. Physicians often work on both systems so they can easily compare the differences in image quality.

Prof. Krajina says, “On the AlluraClarity, the sharpness of the angiograms and the structure of the images seem to be much higher. Now I think we are able to treat

smaller arteries. For instance, we are now capable of treating an aneurysm of one millimeter diameter. These images enable us to have better control of all of these procedures which are quite difficult, like aneurysm treatment, intracranial angio, and stroke.”

The AlluraClarity also allows Prof. Krajina to visualize vasculitis. “This morning we had a woman with vasculitis. We could clearly see it and diagnose it.”

Philips FlexVision XL monitor is available in both angio rooms. This 56-inch display monitor is essential for neuro interventions according to Prof. Krajina. “The impression of the images on the large monitor is very similar to a microscope. We use the magnification function for each procedure. I recommend the large monitor to everybody because of the quality of the images.”

Better visibility of stents and reduced motion artefacts

AlluraClarity has enhanced visibility of intracranial stents as well according to Prof. Krajina. “The new generation of intracranial stents are very small, micro stents. You can get them in placed through micro-catheter #10 which is very small. They are made of nitinol, but we can see both the stents and the markers under X-ray with the AlluraClarity.”

Another advantage of the AlluraClarity is the real-time pixel shift feature with automatic motion control. It corrects for patient and table movements on live images.

Prof. Krajina says, “If you compare the pixel shift, it seems like if the patient moves a little bit, the system fixes itself.” This is an important time-saver for procedures. “Previously, if the patient moved, you had to

go back and start over, make a new mask, etc. You can make some small changes of the movement of the image and mask to correct, but that all takes time. Now the system corrects the image for you and that saves a lot of time, X-ray dose, and contrast media.”

The 3D imaging on the bi-plane is useful for coiling aneurysms and gluing fistula procedures. “You need the 3D imaging, because it is important to see the anatomy from different perspectives. With coiling, you need to see the side branches and be sure that you do not close them in complex aneurysms. We use 3D Roadmap so the procedure can be controlled. These are really complex interventions and 3D is important for that.”

Images are available faster

Speed is another important factor for Prof. Krajina. “We are very sensitive to delays. Our procedures regularly take two to three

hours, and if you have to wait because something does not work that is not good for the general feeling of the team. Our experience is that the biplane AlluraClarity is faster compared to the monoplane Allura Xper system regarding the 3D angio image generation. In general the neuro cases are done faster on a biplane system compared to a monoplane system. A procedure which takes two to three hours can be reduced by thirty minutes with the biplane system, and you save the contrast medium as well.”

“We had a newborn in July that weighed 3 ½ kilos very important not to use too much contrast. You are counting every cc of contrast medium that you use. We were able to do that procedure in our biplane room.”

Fast stroke treatment

“We have started to massively treat stroke. We used to do five or six stroke patients a year. Last year, we did about 30 and this year

will be even more. That follows the history of the coronary disease. We are now able to recanalize the cerebral artery and change the prognosis for the patients. We also do the IV thrombolysis in our hospital if the patients get to us on time,” says Prof. Krajina.

“Behind us is the emergency department so we are very close. That is a real advantage. It used to be that we had two rooms on the other side of the hospital and that didn’t work. By the time you transferred the patient, you lost 20 minutes at least.”

Designed for regular people

The system’s user friendliness is also appreciated by Prof. Krajina. “All the buttons and navigation are very easily used. The engineers who designed this system are not only engineers. The machine is designed for regular people who are not good at handling these quite complex machines. You have to rely on this system in very difficult situations.



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And we face these situations almost every day. Sometimes people are quite nervous and there are complications and this system just has to work.”

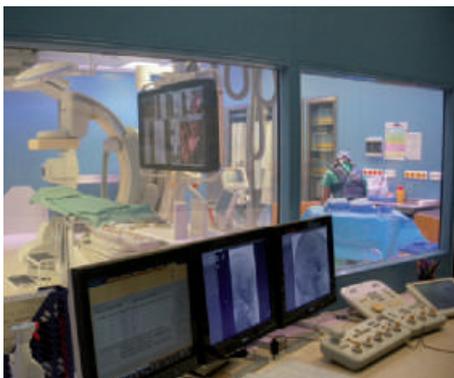
Ultimately better for patients

“Decreasing the radiation dose and better visibility will allow us to do more complex procedures. These procedures will be done under better control. That means they will be better for our patients. That is very important for us,” says Prof. Krajina.



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*A medical physicist at the University Hospital Hradec Králové compared the X-ray dose that was used in the two angiography rooms, one with a Philips AlluraClarity FD20 biplane X-ray system and one with a Philips Allura Xper FD20 over a three month period in 2012. On the AlluraClarity 36 patients were measured and on the Allura FD20 37 patients were measured. These were different procedures, including aneurysm, AVM, stroke treatment and peripheral endovascular procedures.

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