CUSTOMER REPORT

Innovative and vendor-neutral software in cardiology as a booster for quality and efficiency

NHS
Milton Keynes University Hospital
NHS Foundation Trust



Professor Dr Attila Kardos
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Individual know-how of cardiologists still is the most important component for quality of care and safety in diagnosis. But – as in every profession – personal skills vary and so does the technological equipment of medical departments and institutions. A common problem, especially in cardiac ultrasound diagnostics, therefore is a lack of reproducibility due to different requirements. Innovative and intelligent software solutions such as

TOMTEC-ARENA makes a huge contribution to overcome those obstacles. Moreover, it can help increase efficiency in cardiac care processes.

Cardiology at Milton Keynes University Hospital NHS Foundation Trust, like many other healthcare units of the same size, is a multi-vendor department with echo scanning equipment from all major vendors. Before 2017, creating reports was a challenge since each individual ultrasound system came with its own, vendor-dependent workstation and software. This changed when in 2017, the hospital purchased a uniform reporting workstation incorporating TOMTEC analysis module, integrated into the cardiology reporting system. For Professor Attila Kardos, Consultant Cardiologist at Milton Keynes University Hospital, this was a relief: "Instead of having multiple workstations with different software packages, we now have a single platform with a vendor-neutral software from TOMTEC that unifies the way we analyze our echocardiographic images – independent of the ultrasound machine we use. This has been a great progress."

Patients benefit from highly reproducible 3D LV analysis

Working with one single software package to analyze data from all major vendors is a big advantage of TOMTEC. Another important one is the functional variety of the software, especially with regard to 3D views and analysis of the left ventricle. Professor Kardos is particularly enthusiastic about the 3D strain rate analysis: "TOMTEC has an excellent 3D LV algorithm that produces three-dimensional strain rates in a very accurate way. Even if the source images are not perfect, we receive highly reproducible user independent measurements, that gives the interpreter a confidence in the quality of the generated report."

INSTITUTION

- Founded in 1898
- Committed to excellence in patient care, scientific discovery and the education of future physicians
- Among the top-ranked clinical and medical research centers in the country
- Powerful network of collaborators world-wide

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In the "pre-TOMTEC era", 3D strain analysis was a time consuming procedure with low efficiency. One option was obtaining a multi-projection strain analysis based on 2D data – which of course was not comparable to a 3D analysis. The other possibility was using the only ultrasound device that was able to perform 3D echos – which was not connected to the reporting system. But it was not only the comfort of the cardiologists that improved with TOMTEC's software, as Prof. Kardos stresses: "Of course, the patients benefit from the improved quality of measurements as well. For example, we have a rather big cardiac oncology cohort of patients undergoing chemotherapy. The National and European guidelines recommend biplane and 3D LV assessment and recently the GLS values to identify early myocardial injury caused by cardiotoxic medication. 3D analysis is providing us with added benefit in retrieving the 3D GLS values in these patients to aid management. The accuracy of these measurements is essential since patients continued life prolonging chemotherapy can depend among others on these echocardiographic measurements."

Advanced 2D stress echo

Another "work horse function" of TOMTEC-ARENA[1] is the 2D stress echo package (ECHO-COM), which is, as Professor Kardos emphasizes "very flexible, versatile, easy to use and provides us instantaneously with the 17 segment analysis at different stages of a stress-echo in a graphic format". The experienced cardiologist is so convinced of the functionality that he chose TOMTEC as a software partner for the worldwide first stress-echo reporting course he is leading once a year and which has been endorsed by the European Association of Cardiovascular Imaging. "The idea behind the reporting course is reproducibility. So far, there has not been a structured training for cardiologists in reporting using previously acquired stress echo images. As a result some cardiologists who were exposed to high volume stress echo centers are highly specialized while others have to try their luck and report as they think. Therefore, the repeatability and reproducibility of stress echo interpretation was rather scant. Our course wants to close this gap and TOMTEC software package provides with a suitable system to teach and train unified reporting to healthcare professionals."

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Attila Kardos
Since 2003 Professor Attila Kardos has been consultant cardiologist at Milton Keynes University Hospital NHS Foundation Trust. He is an Honorary Senior Lecturer of the Department of Cardiovascular Medicine at Division of Cardiovascular Medicine Oxford University. He was recently awarded with a Chair of Cardiovascular Medicine at Buckingham University Medical School, Life Sciences Department.

KEY FOCUS AND MODULES IN USE

- User independent repeatability and reproducibility, easy to use 3D strain and 2D stress echo analysis

IMAGE-COM[2]
ECHO-COM[2]
3D OPTION IMAGE-COM[2]
4D RV-FUNCTION[2]
2D CARDIAC PERFORMANCE ANALYSIS[2]
4D LV-ANALYSIS[2]
4D MV-ASSESSMENT[2]
4D CARDIO-VIEW[2,1]

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2 Is part of TOMTEC-ARENA.

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