Interview

Cios Alpha: A story about the perfect balance of image quality and dose.

Tara Mastracci, MD, Jason Constantinou, MD
Royal Free, London, United Kingdom

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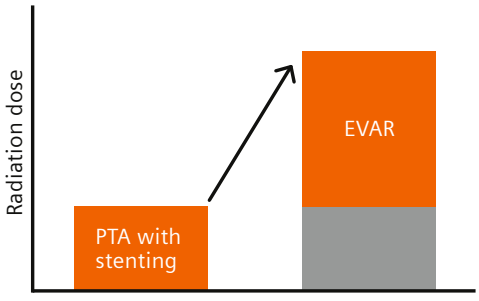
Does good image quality always mean high dose?

Insufficient image quality makes it difficult to correctly identify anatomy or devices. This can not only prolong procedures, but also increase the risk of complications. However, increased image quality often comes at the expense of higher dose and health risks for patients and the OR team.

As several studies have shown [1], more complex procedures such as EVARs come with longer fluoroscopy time and higher dose – also increasing the risk of operators' DNA damage. Especially while complex procedures, patients and the OR team can be exposed for longer time to radiation.

Modern imaging systems with excellent imaging quality also at low dose can help to reduce the radiation exposure of patients, surgeons and their teams.



So does good image quality always mean high dose?

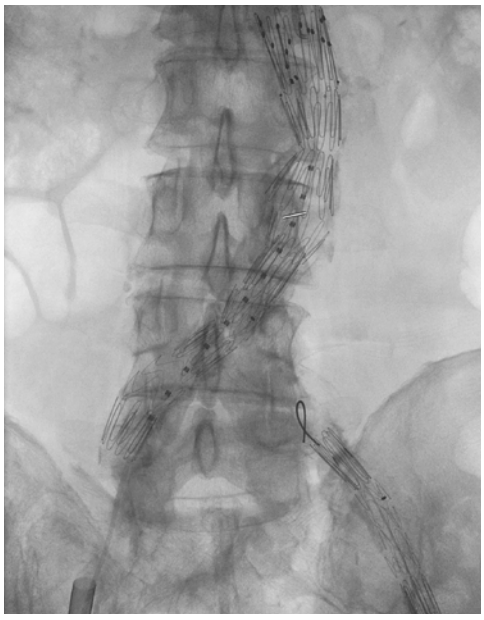
In the following interview Tara Mastracci, MD and Jason Constantinou, MD are stating why working dose sensitive is important and how the new Cios Alpha supports them in their daily work as vascular surgeons, especially compared to their previously used mobile C-arm.

"The new Cios Alpha requires even less images to attain the same level of confidence. Resulting in shorter procedural times."

Tara Mastracci, MD

Tara Mastracci, MD

Abdominal aorta and iliac side branches.



Stent implantation during EVAR

Jason Constantinou, MD

"Cios Alpha offers excellent image quality while letting you achieve lower doses."

Jason Constantinou, MD

About Tara Mastracci, MD:

Mastracci, MD is a vascular surgeon with an interest in complex aortic repair. She completed general and vascular surgery training at McMaster University in Hamilton, Ontario, Canada, and moved on to a superfellowship in complex aortic repair at the Cleveland Clinic in Cleveland, Ohio. Mastracci's first consultant position was at the Cleveland Clinic, where she also held a position as assistant professor at Case Western Reserve University for seven years. She moved to the Royal Free London in October 2014 to lead the aortic team. Recently she has partnered with the radiation physics department at the Royal Free Hospital to improve radiation safety in the field of vascular surgery.

About Jason Constantinou, MD:

Constantinou, MD is a consultant vascular surgeon who trained in London. He has specialised in both open surgical and endo-vascular techniques (keyhole) to treat a wide range of vascular problems including aortic aneurysms, varicose veins, blocked arteries in the leg, deep vein thrombosis (DVT), leg ulcers and carotid disease (to prevent strokes).

Dear Ms. Mastracci, which relevance does the topic „image quality vs. dose" have for your daily work and state of the art surgery?

"The modern surgeon has to pay attention to image quality and dose in the same way. The goal is to find a system which provides the best image quality with the lowest possible dose."

Ms. Mastracci, how important is working „dose-sensitive" for you and why?

"Dose is incredibly important for two reasons – first because I care about my patients and I know that in the field of endovascular surgery patients are exposed to increasing levels of radiation over the course of their treatment and surveillance program – secondly because my colleagues and myself are exposed to nearly the same dose and we need to make sure that we have a safe working environment."

Ms. Mastracci, do you feel, that Cios Alpha supports you to achieve lower doses?

"Our infrarenal aneurysms are primarily treated on our Cios Alpha and the doses we are achieving are very low. We have seen a significant reduction in dose in our practice since introducing the Cios Alpha."

Mr. Constantinou, do you remember the first time, when you used the Cios Alpha?

"The first time I used the system was for a difficult EVAR with tortuous anatomy and I noted significant improvements with regards to image quality. The renewed Retina Imaging Chain with its new CMOS detector gives you truly sharp images, even when you use the system at the lowest dose settings."

Ms. Mastracci, do you feel, that the new Cios Alpha can move boundaries regarding the fields of clinical application for mobile C-arms?

Ms. Mastracci:
"In the past we would have never considered completing TEVARs with a mobile C-arm, especially with having a hybrid theater. With the new Cios Alpha I am really confident that we can push the limits and complete even more complex procedures on a mobile C-arm."

Mr. Constantinou, do you see workflow advantages in using the new Cios Alpha in your daily work as a vascular surgeon?

"Using the Cios Alpha definitely saves time because of the improved image quality. Less images are needed due to improved image quality, allowing clinical decisions and evaluation to take place much faster – which in turn saves dose."

Mr. Constantinou, if you had to summarize your personal experience with Cios Alpha so far, how would you phrase it in a single sentence?

"Overall I am really happy with the new Cios Alpha – It is an improved system, which offers sharper visualization and easy handling, and I am looking forward to continue using it in the future."

Ms. Mastracci, if you had to summarize your personal experience with Cios Alpha so far, how would you phrase it in a single sentence?

"Cios Alpha's wide variety of applications has meant that we've been able to expand our practice in a way that both keeps us and our patients safe because of the lower radiation dose at no costs for image quality."

[1] See e.g.: El-Sayed T, et al. (2017): RadiationInduced DNA Damage in Operators Performing Endovascular Aortic Repair. Arif S, Bartus S, Rakowski T, Bobrowska B, Rutka J, Zabowka A, et al. Comparison of radiation dose exposure in patients undergoing percutaneous coronary intervention vs. peripheral intervention. Postepy Kardiol Interwencyjnej. 2014; 10(4): 308–13. doi: 10.5114/pwki.2014.46776. Epub 2014 Nov 17. Kalef-Ezra JA, Karavasilis S, Ziogas D, Dristiliaris D, Michalis LK, Matsagas M. Radiation burden of patients undergoing endovascular abdominal aortic aneurysm repair. J Vasc Surg 2009; 49: 283–7.

The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

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