

Editorial

- I The challenge of imaging congenital heart disease in neonates: How to minimize radiation exposure with advanced CT technology**
Thomas Senoner, Ralf Geiger, Andrew L. Rivard, Gudrun M. Feuchtner

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- 1 SCCT Presidents Page: A Productive Year - the Work of Many**
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Review Articles

- 3 Image reconstruction in cardiovascular CT: Part 2 – Iterative reconstruction; potential and pitfalls**
U. Tayal, L. King, R. Schofield, I. Castellano, J. Stirrup, F. Pontana, J. Earls, E. Nicol

The use of IR in CT previously has been prohibitively complicated and time consuming, however improvements in computer processing power now make it possible on almost all CT scanners. Due to its potential to allow scanning at lower doses, IR has received a lot of attention in the medical literature and has become a successful commercial product. Its use in cardiovascular CT has been driven in part due to concerns about radiation dose and image quality. This manuscript discusses the various vendor permutations of iterative reconstruction (IR) in detail and critically appraises the current clinical research available on the various IR techniques used in cardiovascular CT.

Original Articles

- 11 Systematic assessment of procedural parameters, influence on downstream testing and 12-month outcomes of a CT-myocardial perfusion service**
Kheng-Thye Ho, Hean-Yee Ong, Sharon Ong

“This study describes the real-world referral pattern of patients to a CT myocardial perfusion service, the technical issues associated with providing the service, the results of the studies, and the subsequent downstream utilization of other investigations, and patient outcomes.”
- 21 Coronary artery calcium scoring in low risk patients with family history of coronary heart disease: Validation of the SCCT guideline approach in the coronary artery calcium consortium**
Ramzi Dudum, Omar Dzaye, Mohammadhassan Mirbolouk, Zeina A. Dardari, Olusola A. Orimoloye, Matthew J. Budoff, Daniel S. Berman, Alan Rozanski, Michael D. Miedema, Khurram Nasir, John A. Rumberger, Leslee Shaw, Seamus P. Whelton, Garth Graham, Michael J. Blaha

The 2017 SCCT guidelines recommended selective use of CAC scoring in low risk patients with a strong family history of coronary heart disease, but the 2018 ACC/AHA guidelines did not endorse CAC in this low risk group. This study from the CAC Consortium provides strong evidence that CAC scoring can also be used in those at low risk of ASCVD (<5% 10-year risk) with a family history of coronary heart disease to further risk stratify who might receive the most benefit from preventive pharmacotherapy, with those with CAC >100 reaching high risk status.

26 Prognostic value of CT myocardial perfusion imaging and CT-derived fractional flow reserve for major adverse cardiac events in patients with coronary artery disease

M. van Assen, C.N. De Cecco, M. Eid, P. von Knebel Doeberitz, M. Scarabello, F. Lavra, M.J. Bauer, D. Mastrodicasa, T.M. Duguay, B. Zaki, G.G. Lo, Y.H. Choe, Y. Wang, Pooyan Sahbaee, Christian Tesche, M. Oudkerk, R. Vliegenthart, U.J. Schoepf

This study evaluated the prognostic value of CCTA, CT-FFR, and dynamic CTP imaging for MACE. A total of 243 vessels and territories were analyzed in 81 patients. Our results demonstrate that index-MBF calculated from dynamic CTP acquisitions has the highest prognostic value, over CCTA and CT-FFR values. In univariate analysis, a positive index-MBF resulted in the largest risk for MACE (HR 11.4), compared to CCTA (HR 2.6) and CT-FFR (HR 4.6). In multivariate analysis, only index-MBF significantly contributed to the risk of MACE (HR 10.1), unlike CCTA (HR 1.2) and CT-FFR (HR 2.2).

34 Relationship of exercise to coronary artery disease extent, severity and plaque type: A coronary computed tomography angiography study

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41 Submillisievert CT angiography for carotid arteries using wide array CT scanner and latest iterative reconstruction algorithm in comparison with previous generations technologies: Feasibility and diagnostic accuracy

Andrea Daniele Annoni, Piero Montorsi, Daniele Andreini, Gianluca Pontone, Maria Elisabetta Mancini, Giuseppe Muscogiuri, Alberto Formenti, Saima Mushtaq, Piero Trabattoni, Luca Dainese, Mauro Pepi

CTA is one of the first choice imaging modality in patients with or without recent symptoms of brain ischemia. However guidelines limit the use of CTA due to the high doses of radiation used. This study assesses the evaluability, radiation exposure and accuracy of a low dose scan protocol for CTA of carotid arteries using 80-kV, 3rd-generation CT scanner and last generation adaptive statistical iterative reconstruction algorithm – V (ASIR-V) in comparison with previous generations CT scanner and IR algorithm. Our protocol allows submillisievert exams with good image quality and high diagnostic performance with effective dose reduction up to 86% in comparison with previous generation CT technologies.

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51 SCOT-HEART is the trial that we have been waiting for!

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54 The SCOT-HEART Trial. What we observed and what we learned

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