Case study

Rapid and precise TAVI planning with Revolution* CT

Jean-Louis Sablayrolles, M.D.
Head of Cardiovascular Imaging at Centre Cardiologique du Nord
Saint-Denis, France

©2014 General Electric Company — All rights reserved.
General Electric Company reserves the right to make changes in specification and features shown herein, or discontinue the product described at any time without notice or obligation.
GE and GE Monogram are trademarks of General Electric Company.
GE Healthcare, a division of General Electric Company.
*Trademark of General Electric Company.
The clinical cases are displayed for educational purposes only and for the benefit of healthcare students and professionals.

©2014 General Electric Company – All rights reserved.
General Electric Company reserves the right to make changes in specification and features shown herein, or discontinue the product described at any time without notice or obligation.
GE and GE Monogram are trademarks of General Electric Company.
GE Healthcare, a division of General Electric Company.
*Trademark of General Electric Company.
The clinical cases are displayed for educational purposes only and for the benefit of healthcare students and professionals.

©2014 General Electric Company – All rights reserved.
General Electric Company reserves the right to make changes in specification and features shown herein, or discontinue the product described at any time without notice or obligation.
GE and GE Monogram are trademarks of General Electric Company.
GE Healthcare, a division of General Electric Company.
*Trademark of General Electric Company.
The clinical cases are displayed for educational purposes only and for the benefit of healthcare students and professionals.
Rapid and precise TAVI planning with Revolution CT

TAVI/TAVR planning requires many detailed measurements including valve plane diameter, ascending and descending aorta diameter, valve sinuses diameters and the distance from valve plane to coronary Ostia. These can all be complete using Revolution CT imaging. CT can also help to provide a detailed morphological analysis of the aorta and detect common pathologies like aneurysms and dissections.

Patient history
• A woman in her 80’s with hip prosthesis was referred to CT for transcatheter aortic valve implantation (TAVI) planning.
• The mean heart rate of the patient was 101 BPM and no beta blocker was used because the main purpose of the study was to assess the whole aorta and provide detailed measurements for the TAVI procedure with no specific request for coronary artery assessment.
• The physician decided to perform a single exam combining two gated axial acquisitions to image the thoracic aorta and heart, followed by a non-gated helical acquisition from the aorta through the iliac arteries, all within a single contrast injection.

Acquisition
Mixed axial gated and helical non-gated acquisition:
• Axial scanning with ECG gating
  - Smart coverage to automatically select anatomy specific collimations required to scan the prescribed area
  - kV Assist & SmartmA to tailor dose to patient’s morphology
  - ASiR-V to lower dose
  - 0.28 sec rotation speed
  - Heat rate 101 BPM
• Helical scanning without ECG gating
  - kV Assist & SmartmA to tailor dose to patient’s morphology
  - ASiR-V to lower dose
  - 0.28 sec rotation speed
  - 80 mm collimation
  - 300 mm/s table speed at a pitch of 1
• Total dose: DLP = 580 mGy-cm
• Total acquisition time: 6.8 sec

Results

Conclusion

With Revolution CT, you can make TAVI planning examinations robust, reproducible and low dose. In your hands, the combination of several key technologies makes this possible: fast rotation speed, intelligent motion correction, 160 mm whole-organ detector coverage, flexible acquisition modes and the latest generation of iterative reconstruction, ASiR-V.

I was impressed by the quality and the dose of this TAVI planning examination, given the patient’s heart rate (101 BPM) and the presence of the hip prosthesis. Revolution CT is a unique system that can deliver robust and reproducible techniques to image all kinds of patients, even the most challenging ones.

Jean-Louis Sablayrolles, M.D.
Rapid and precise TAVI planning with Revolution* CT

Jean-Louis Sablayrolles, M.D.
Head of Cardiovascular Imaging
at Centre Cardiologique du Nord
Saint-Denis, France