

Highlights from China Interventional Therapeutics (CIT) 2019



Runlin Gao*, MD; *CIT Chairman*

Fu Wai Hospital, National Center for Cardiovascular Diseases, Chinese Academy of Medical Sciences, Beijing, China

China Interventional Therapeutics (CIT) 2019, in partnership with TCT, took place at the National Convention Centre, Beijing, China from 28 March to 1 April 2019, organised by the Chinese Medical Association. Co-organisers were Fuwai Hospital, Chinese Academy of Medical Sciences; the meeting was co-sponsored by the Chinese National Centre for Cardiovascular Diseases, the CIT Board of Directors, the Chinese Society of Cardiology and the Cardiovascular Research Foundation (CRF).

During the three-and-a-half-day scientific programme encompassing 177 sessions, 1,644 didactic lectures were presented, 15 late breaking clinical trials and first report investigations were released, and 45 live cases were performed, broadcasting from eight Heart Centres both in China and internationally.

The congress offered a true academic feast for all!

With an enduring focus on “C-Cooperation, I-Innovation, T-Transition”, CIT remains the largest scientific meeting in the field of interventional cardiology in the Asia-Pacific region. CIT 2019 welcomed 8,648 participants – 6,550 from mainland China, 381 from overseas regions or internationally, 1,550 from industry, 102 volunteers from local universities or other institutions and 65 media representatives. This year, interactive smartphone and other mobile device platforms allowed the delegates and audience to benefit more fully from the rich scientific programme. As of today, the total audience reached by CIT 2019 online numbers 209,405!

CIT continues to serve as a dynamic and thoroughly fruitful venue, introducing new knowledge and technologies into China, fostering meaningful academic exchanges and cooperation, and showcasing local innovation and progress in cardiovascular interventions to the rest of the world. In his introductory remarks opening CIT 2019, CIT Chairman Dr Runlin Gao highlighted the continued expansion of the PCI caseload in China, which in 2017 counted 753,142 interventions – a 13% increase over 2016 – not to mention innovations in the various devices used as cited below.

In China today: innovations in cardiovascular interventional devices; advances in interventional cardiovascular research

In the field of bioresorbable scaffolds (BRS), the NeoVas™ bioresorbable sirolimus-eluting scaffold developed by Lepu, Beijing, China, was approved by the CFDA and launched on the market. A first-in-human study of the Firesorb® bioresorbable sirolimus target eluting coronary scaffold, a second-generation BRS with a strut thickness of 100-120 µm developed by MicroPort, Shanghai, China, demonstrated its efficacy, safety and biocompatibility by clinical, angiographic and intravascular images. A novel, innovative iron bioresorbable sirolimus-eluting scaffold (IBS) was independently developed by Lifetech, Shenzhen, China. This device has a strut thickness of 70 µm

*Corresponding author: Fu Wai Hospital, National Center for Cardiovascular Diseases, Chinese Academy of Medical Sciences, A 167, Beilishi Road, Xicheng District, Beijing, 100037, China. E-mail: gaorunlin@citmd.com

and a scaffold that can be biodegraded in one and a half years. It demonstrated similar mechanical properties to the XIENCE stent (Abbott Vascular, Santa Clara, CA, USA) as well as good biocompatibility in animal experiments. In March 2018, the CFDA granted approval for the IBS to undergo a first-in-human study, which is now ongoing.

In the field of transcatheter aortic valve replacement (TAVR), the Venus A-Valve® (Venus Medtech, Hangzhou, China) and J-Valve™ System (Jiecheng, Suzhou, China) were approved by the CFDA and launched commercially. The Venus A-Valve has been implanted in approximately 2,000 patients with favourable outcomes. The VitaFlow® TAVR system (MicroPort, Shanghai, China) completed its registration trial with favourable outcomes and is currently undergoing regulatory review. The registration trials for the TaurusOne TAVR device (Peijia Medical, Suzhou, China) and Venus A-Plus, a retrieval system with an expandable sheath, have completed patient enrolment. The Venibri I (Colibri Heart Valve, Broomfield, CO, USA, and Venus Medtech), a pre-mounted TAVR system with a dry tissue valve, has now been implanted in 15 cases in Argentina, India and China.

First-in-human studies of the locally developed transcatheter mitral repair devices MitralStitch™ (DeJin Medtech, Hangzhou, China) and ValveClamp (Hanyu Medical, Shanghai, China) are ongoing and were reported.

A novel technique for the detection of haemodynamic abnormalities and quantitative flow ratio (QFR; Pulse Medical Imaging, Shanghai, China) performed well in the FAVOR II China trial and is now ready for assessment in multicentre blinded randomised clinical trials.

The innovative LAMBRE™ left atrial appendage closure device (Lifetech, Shenzhen, China) showed promising performance in patients with anatomies unsuitable for WATCHMAN™ device (Boston Scientific, Marlborough, MA, USA) use.

The SyMapCath I™ Catheter and SYMPIONEER S1™ Stimulator/Generator, a novel renal denervation (RDN) system (SyMap Medical, Suzhou, China), have integrated functions for guidance, angiography, stimulation/mapping, temperature-controlled ablation, and manual open-loop irrigation. The Iberis™ RDN system (AngioCare, Shanghai, China) with its spiral ablation catheter is undergoing multicentre, single-blinded, randomised, sham-controlled clinical trials.

Research on cardiovascular interventions continues to increase rapidly in China as reflected by the quality and quantity of articles and presentations. The “Late Breaking Clinical Trials” and “First report Investigations” sessions at CIT 2019 featured 15 studies. The topics included efficacy and safety of bioresorbable coronary scaffolds; randomised comparisons among DES and strategies for treating left main bifurcation lesions; registration studies for new TAVR devices developed in China; the implications of QFR for predicting long-term MACE; a novel intracoronary optical coherence tomography-based fractional flow reserve measurement; comparisons between FFRCT and FFRQCA; a novel plasma biomarker for plaque rupture in patients with STEMI;

and the outcomes of carotid artery plaque intervention with the Tongxinluocapsule (a traditional Chinese medicine).

In-depth discussions exploring the most impactful research presented at the latest ACC and TCT meetings

On 29 March, immediately following the opening ceremony, Drs Gregg Stone, Jeffrey Popma and Runlin Gao chaired a plenary session reviewing the most impactful studies presented at the recent ACC and last year’s TCT meetings. Dr Stone’s presentation focused on the COAPT trial (transcatheter leaflet approximation in heart failure patients with secondary mitral regurgitation). Dr Martin Leon delivered a presentation on balloon-expandable TAVR vs surgery (PARTNER 3) and Dr Popma spoke about self-expanding TAVR vs surgery in low-risk patients with severe symptomatic aortic stenosis. The in-depth discussions by speakers and panellists on the clinical significance as well as the impact on clinical practice of these findings were considered to be very useful by the enthusiastic audience.

Case-oriented discussion on clinical hot topics

A subsequent case-oriented clinical discussion session chaired by Drs Gary Mintz, Bo Yu and William Fearon focused on coronary physiology and imaging. Dr Jun-Jie Zhang reviewed the results of the ULTIMATE trial (intravascular ultrasound-guided vs angiography-guided DES implantation in all-comer patients) presented at TCT 2018, and a case-based learning programme addressed OCT stent sizing and optimisation. Also, a discussion was held on when and how to use resting and hyperaemic coronary flow indices.

In the plenary session’s “New Technology Forum: Angiography-Based FFR”, Drs Bo Xu and William Fearon presented the QFR System and the FAVOR trials along with the FFRangio™ System (CathWorks, Kfar-Saba, Israel) and the FAST-FFR trial, respectively. Clinical use of the angiography-based FFR measurement, which can be performed online without using special catheters, appears promising.

The case-oriented clinical discussions II plenary session highlighted complex and high-risk patients (CHIP). Dr Ajay Kirtane delivered a talk, illustrated with appropriate cases, entitled “CHIP Manifesto: Rationale, Workup, Heart Teams, Haemodynamic Support, and Much More...”. This presentation was followed by an extensive discussion on PCI in patients with severe coronary calcification, chronic total occlusion and challenging vascular access and management of complications, among other topics.

All presentations and discussions by domestic and international experts in the field were well attended and received.

Joint partnership sessions with international academic organisations and societies

Chaired by Drs Andreas Baumbach and Bo Xu, the PCR at CIT plenary session I took place on 30 March and focused on complex PCIs. The session started with a live case demonstration from

Fuwai Hospital. A case of left main distal bifurcation stenosis was presented and treated by Drs Jean Fajadet and Jingang Cui. After an intensive discussion between operators and panellists, a V-stenting technique was performed with an excellent outcome. Then, Dr Michael Haude presented new data on the impact of PCI on hard events (reduced MI rates) in patients with chronic coronary syndromes. Drs Patrick Serruys and Niels Holm spoke about the role of coronary CT combined with FFR for diagnosis and the impact of QFR on PCI practice.

The PCR at CIT plenary session II, chaired by Drs Bernard Prendergast and Runlin Gao, focused on TAVR in low-/intermediate-risk patients. A live case of severe bicuspid aortic stenosis from Fuwai Hospital was presented and successfully treated by TAVR using a TaurusOne valve; this case was performed by Drs Yongjian Wu and Christoph Naber. Following the live case transmission, Dr Thomas Modine spoke about the current status of indications for TAVR vs SAVR in low-/intermediate-risk patients. Dr Lars Søndergaard addressed the question of how to streamline TAVR in order to render it simpler, less invasive, and reproducible. Finally, Dr Mao Chen presented local perspectives on TAVR, indicating that bicuspid aortic stenosis and more severe calcification are more common in China than in Western populations, a fact which warrants further investigation.

The overall quality of cardiovascular interventions in China has rapidly improved in recent years. One of CIT's major goals is the optimisation of treatment of complex lesions and patients at high risk. To this end, a one-and-a-half-day academic agenda focused heavily on these complex and high-risk indicated patients (CHIP), as did the international partnership sessions (such as CCT, TCT-AP, CRT, NCVH, SCAI, APSIC, CACI and HK STENT, etc.) with many cases being transmitted live to the audience in the auditorium. The programmes on peripheral vascular intervention, left atrial appendage closure and interventions for congenital heart diseases were also well attended. Participants benefitted from an

intellectually enriching exchange of both theory and clinical practice and experience during these live case demonstrations, case reports, technical lectures, indication seminars, and panel discussions.

Hands-on training in our learning centre

This year CIT especially strengthened the physician's hands, augmenting their skills with hands-on training. The CIT Learning Centre organised 188 courses in 20 rooms over three-and-a-half days with a total of 2,970 delegates being trained! The attendees actively participated in the hands-on programme using simulators to learn new techniques under the watchful gaze of renowned experts. All the training rooms were full to capacity – and even reservations were required!

The 11th annual clinical research workshop

The 11th annual clinical research workshop was another attractive feature of CIT. Designed and organised by Drs Ajay Kirtane, Bo Xu, and Roxana Mehran, its broad content included coverage spanning good clinical practice (GCP) principles, the design and implementation of a clinical trial project and on to correctly interpreting and publishing its outcomes. Lectures by prominent physicians/scientists clearly benefitted the attendees, in particular young investigators, some of whom participated in the Young Investigator Award competition. This workshop's audience continues to increase year after year.

CIT 2019 in partnership with TCT was very successful, thanks to the outstanding contributions from its international and Chinese faculty, the CIT Working Group as well as all the participants. CIT 2020 in partnership with TCT will be held at the National Convention Centre, Beijing, China, from 2 April to 5 April 2020. We hope to see you there.

Conflict of interest statement

The author has no conflicts of interest to declare.