Message from President APHRS Summit 2017

Dear Colleagues,

The APHRS Summit 2017 will be held in Shanghai, China, from April 7-8. This is another important Asia-Pacific arrhythmia regional meeting held in China since APHRS annual conference in 2009.

As the previous year’s meeting, the APHRS Summit 2017 will also include the APHRS board meeting as well as the scientific symposium. In addition, we will also have HRS @ China 2017 in the meantime.

Different from other general conferences in the field of cardiac arrhythmias, the APHRS Summit and HRS @ China will be much more focused on the hot topics in the rapid advancing area, which will bring the latest research results, the progress of optimal clinical diagnosis and management of arrhythmia.

During the summit, the device and pharmaceutical companies will also have the opportunity to have face to face meetings with the key members of the APHRS board to discuss how we can work together to improve education and training for doctors on EP and electrophysiology in the Asia Pacific region.

Shanghai, one of the largest and most exciting cities in Asia Pacific, is waiting for you in her beauty of season.

Thank you for your interest in the meetings, and I look forward to welcoming you in Shanghai.

Yours Sincerely,

Shu Zhang, MD, PhD, FHRS, FESC
President, APHRS
Hybrid Ablation for the Treatment of Atrial Fibrillation in China: An Overview

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Atrial fibrillation (AF) is the most common arrhythmia encountered in clinical practice worldwide. It is estimated that it currently affects at least 10 million Chinese adults. Over the past 20 years, catheter ablation has emerged as the therapy of choice for the treatment of AF, in particular for patients with paroxysmal AF. However, persistent AF still represents a major treatment challenge. Although various strategies have been proposed, the long-term efficacy of ablation remains disappointingly low, particularly in patients with long-standing persistent AF. Due to these challenges, hybrid ablation, which combines epicardial and endocardial ablation, has been receiving increasing attention from both cardiac surgeons and electrophysiologists.

To our knowledge, hybrid ablation of AF has been so far performed in about 10 tertiary centers in mainland China, with more centers planning to implement the procedure. Due to the lack of a national survey, the exact number of patients who have undergone this procedure is still unknown. Our article provides a brief overview of the current state of and challenges related to this emerging therapy for AF in China.

Patient Selection and Types of Hybrid Ablation

Patients with long-standing persistent AF or recurrent AF after one or more catheter ablation procedures represent the main candidates for hybrid ablation of AF in China. Two recent articles that discuss this approach will be published in the upcoming issue of Chinese Journal of Cardiac Arrhythmias. In the study conducted by Liu and Mei’s team, 22 patients with long-standing persistent AF underwent hybrid ablation. Of these, five (22.7%) patients had one to three failed ablation procedures before they underwent hybrid ablation. In another study, by Yao and Zheng’s team, all 51 patients had a history of failed ablation procedures (one to three) and 13 (25.5%) of them had persistent AF.

Three types of hybrid ablation procedures are currently performed in China. One approach is to have cardiac electrophysiologists perform the index catheter ablation of AF. If AF recurs despite aggressive endocardial ablation, cardiac surgeons perform an epicardial ablation three months after the initial catheter ablation. This is currently the most common hybrid ablation method used in China. A second approach involves performing endocardial ablation and epicardial ablation during the same procedure, in a so-called one-stage hybrid ablation. As a third option, cardiac surgeons perform the index procedure, followed by endocardial ablation performed by cardiac electrophysiologists 4-8 weeks later. The first and the third approaches belong to the sequential hybrid ablation category.

Rationales and Outcomes

As hybrid ablation is still in its infancy, there is no consensus on ablation strategies. However, the following targets were typically achieved in most centers in China: circumferential pulmonary vein isolation, “box isolation” of the left atrial posterior wall, left atrial appendage exclusion, ablation of ligament of Marshall (LOM)/ epicardial fat pad, and cavotricuspid isthmus ablation. In some groups, bi-atrial complex fractionated atrial electrogram (CFAE) ablation was performed routinely. In Liu and Mei’s group, the anterior left atrial line connecting the left atrial roof line and anterior portion of the mitral annulus, referred to as the Dallas line, was created by epicardial ablation combined with
endocardial touch-ups (Figure 1). The most popular ablation tools used in hybrid AF ablation in China are bipolar radiofrequency ablation clamps and irrigated radiofrequency ablation catheters. In terms of establishing an endpoint for the hybrid approach, achievement of all scheduled lesion sets was considered the endpoint of ablation in the majority of centers in China. However, some groups aimed for AF termination by ablation during the procedure.

![Figure 1. The left atrial lesion set of hybrid ablation in Liu and Mei's group in China. A: The posterior wall of the left atrium, including bi-lateral pulmonary veins, was isolated after epicardial ablation. B: The anterior line of the left atrium was created. C: Sequential activation mapping validated the completeness of this line.](image)

In terms of success rates of hybrid ablation for AF, 77.2% (17/22) of patients in Liu and Mei’s study and 72% of patients in Yao and Zheng’s study maintained sinus rhythm without antiarrhythmic drugs after a mean follow-up of 12±6 months and 12 month, respectively. The severe complications of hybrid ablation of AF reported in the literature include conversion to sternotomy, atrial-esophageal fistula, permanent phrenic nerve paralysis, cardiac tamponade, myocardial infarction, stroke, and hemothorax, most of which were related to surgery. According to a meta-analysis of hybrid ablation of AF conducted by one of the authors (X.L) of this article, the severe complication rate was 5% for one-stage hybrid procedures and 3% for sequential hybrid procedures. In China, the reported severe complication rate of hybrid ablation of AF is around 3%, which is comparable with the numbers reported in the literature.

**Current Challenges**

Given the fact that the outcomes of hybrid ablation in treating patients with complex AF, such as long-standing persistent AF, are promising compared to those of treatment by catheter ablation alone or minimally invasive surgery alone, increasingly more centers in China are willing to adopt this treatment approach. However, many challenges must still be addressed. First of all, few cardiac surgeons are truly experienced in performing the complete thoracoscopic ablation of the left atrium, therefore, surgical training should be a top priority in the future. Second, the cost of one-stage hybrid ablation of AF is high, which limits its application to more patients. Finally, hybrid ablation of AF involves collaboration between cardiac electrophysiologists and surgeons. This multidisciplinary team (MDT) approach is not yet fully ingrained in most hospitals in China. However, it is likely that the collaborative process between cardiac surgeons and electrophysiologists will be further improved in the near future, as an increasing number of medical centers adopt these procedures.
Preface

The most common and serious complication of atrial fibrillation (AF) is stroke. According to the Global Burden of Disease 2010, the stroke is the first cause of death in China. Long-term standardized anticoagulation reduces the risk of stroke in patients with AF. Furthermore, recent clinical trials suggest that left appendage occlusion is an effective and safe protection against stroke. During the past few years, left appendage occlusion and anticoagulation use have gradually improved in China.

Left Appendage Occlusion

In March 2013, left appendage occlusion was first used in Fuwai Hospital and Remin Hospital of Wuhan University, China. Watchman (Boston Scientific Inc., US), Amplatzer Cardiac Plug (St Jude Medical Inc., US) and LAmbre (Lifetech Scientific Corp., Shenzhen, China) were the three most common used devices in China. From March 2014, over 1,500 patients with AF were implanted with Watchman device in 120 hospitals from 27 provinces in China. Among them, nearly 800 cases were treated in 2016. In addition, more than 300 patients with AF were implanted with Amplatzer Cardiac Plug device in 2016. LAmbre is a new, self-expanding left appendage occluder, specifically designed for left appendage closure. In 2014, an open-label nonrandomized pilot trial was designed to assess the safety, feasibility and efficacy of deploying the LAmbre left appendage occlusion device. The president of Chinese Society of Pacing and Electrophysiology (CSPE), Dr. Congxin Huang from Remin Hospital of Wuhan University, is the principle investigator of this trial. One hundred and fifty-three consecutive patients who underwent percutaneous left appendage occlusion with LAmbre device reached 99.4%. Importantly, the observed ischemic stroke rate was only 1.3%, representing 80% fewer events than expected based on the CHADS2 score of the study population.

In Dec 2014, a joint consensus document “Left atrial appendage interventions for thromboembolism prevention in patients with atrial fibrillation” was published by CSPE/CSC/CSA, proposing the indications for left appendage occlusion in China. Nonvalvular AF patients with CHA2DS2-VASC score ≥2 and one of the following items are considered as suitable for left appendage occlusion: not suitable for long-term anticoagulation, stroke or embolism despite targeted INR in patients taking warfarin, or HAS-BLED score ≥3.

On April 29, 2016, left atrial appendage occlusion committee of CSPE was found. Dr. He Huang was selected as the president. The mission of left atrial appendage occlusion committee is to standardize and popularize this new method in China.
Anticoagulation Use

According an epidemic study, there are 38% AF patients was treated with aspirin and nearly 60% of AF patients did not receive any antithrombotic therapy, only 3% was treated with warfarin in 2004. The result of RELY-REGISTRY showed that only 10% AF patients was treated with anticoagulant in China in 2011. Although the ratio of anticoagulant therapy has been improved, there is still a big gap compared with the North American countries. Furthermore, the mean time in the therapeutic range was only 36% in China. In addition, Chinese subgroup analysis of GARFIELD-AF Registry suggest that less than 1/3 moderate-high risk of AF patients treated with anticoagulant, more than 1/2 moderate-high risk of AF patients treated with antiplatelet drug, and nearly 1/5 moderate-high risk of AF patients did not receive any antithrombotic therapy.

Encouragingly, the Chinese Atrial Fibrillation Registry Study showed an improvement of oral anticoagulation use among Chinese patients with AF in Beijing in recent years, although only 36.5% of patients with CHA2DS2-VASc score ≥2 received oral anticoagulation. However, nonpersistence of warfarin treatment remains a serious problem for stroke prevention in Chinese patients with nonvalvular AF.

Novel oral anticoagulants (NOACs) have been associated with multiple effectiveness and safety benefits compared with vitamin K antagonists in patients with AF. More importantly, clinical studies suggest that the overall benefit of NOACs is better than warfarin in Asians. The major bleeding, intracranial haemorrhage and stroke event incidence are lower in Asian patients who treated with NOACs, compared with warfarin. However, due to the high cost of NOACs, most AF patients cannot currently afford to pay for long-term anticoagulation in China.

Perspectives

Over the past decade, anticoagulant treatment for the prevention of stroke in patients with AF has gradually improved. However, anticoagulation is still inadequate in China. Great effort should be made to increase the anticoagulation therapy rate. Furthermore, NOACs should be preferentially indicated for stroke prevention in China. Finally, left atrial appendage occlusion has developed rapidly for stroke prevention and exhibited significant benefit and high safety in China, but its clinical efficacy and safety needs to be further investigated in Chinese AF patients.
Reveal LINQ ICM System

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Introduction of ICM

**What is ICM?**

The Insertable Cardiac Monitor (ICM) is an implantable patient-activated and automatically-activated monitoring system that records subcutaneous ECG and is indicated in the following cases: patients with clinical syndromes or situations at increased risk of cardiac arrhythmias, patients who experience transient symptoms such as dizziness, palpitation, syncope, and chest pain that may suggest a cardiac arrhythmia. ICM has been changed from a diagnostic device to a patient management tool.

**Reveal LINQ ICM system**

A revolutionary ICM system Reveal LINQ was approved by FDA in 2014. This is the new generation ICM that transforms your ability to diagnose and treat even the most difficult-to-detect cardiac arrhythmias.

| Small | • 1.2cc, 2.5g, 87% Smaller and 20% more data memory than Reveal XT ICM.  
| • Up to 3-year longevity for long-term monitoring  
| • MR Conditional at 1.5 and 3.0 Tesla. |
| Simple | • Minimally invasive with simplified insertion procedure  
| • 97% of physicians found the new insertion tool simple and intuitive.  
| • The Reveal LINQ ICM comes pre-loaded in the insertion tool. |
| Precise | • Highest published AF detection accuracy on the market, at 99.4%, streamlines data review  
| • 3% fewer false positives than shown in other ICM published data—meaning 63% less episode review for clinicians |
| Connect | • Wireless Transmission with MyCareLink™ Patient Monitor  
| • 79% of physicians said wireless CareLink® Notifications resulted in earlier clinical decisions. |

**Clinical evidence**

[PICTURE study] 1

Place of Reveal ICM in the Care Pathway and Treatment of patients with Unexplained Recurrent Syncope

- In 570 patients implanted with a Reveal ICM and followed for a year
- Overall, patients had seen an average of three different specialists for management of their syncope.
- The median number of tests performed per patient in the total study population was 13 (inter-quartile range 9-20)
- Most patients (70%) had been hospitalized at least once for syncope.
During follow-up, 38% of patients had a recurrence of syncope within 1 year.

Reveal® ICMs guided diagnosis in 78% of patients with recurrence.

[CRYSTAL AF Study]²
Cryptogenic Stroke and Underlying Atrial Fibrillation

- In 441 patients randomized either to Reveal ICM or standard medical care and followed for 36 months:
- Continuous monitoring detected over seven times more patients with AF at the 12-month end point
- When followed for three years, AF was detected at a rate of 30% in the ICM arm vs. 3% in the standard follow-up arm.
- Short-term monitoring is not sufficient as the median time to AF detection over 12 months of follow-up was 84 days.
- 97% of patients who had AF detected were prescribed OAC

- Case sharing

Case 1:
Female, 80 years old. On Dec 1st, 2015, Reveal LINQ was implanted (R wave: 5mv) after all checks had been done but still could not find the reason behind the clinical symptoms. Patient was hospitalized because of paroxysmal amaurosis in the past 1 year and dizzy 3 days in June, 2016. After LINQ implanted, the data showed information - total 205 AT/AF episodes are recorded in the past 2 months. Tachy episode clearly identified AF with high ventricle rate. Through the evidence from LINQ, Cryo ablation was used to treat the AF. No AT/AF episodes found after Cryo ablation.

(Provided by Dr. Farong Shen, Zhejiang Greentown Cardiovascular hospital)
**Case 2:**

Female, 66 years old. 7 sudden losses of consciousness for no reason in 2 years, one event lasted for 10 seconds. However, all kinds of tests were done but no clear diagnosis could be made. Patient fainted again in Oct 2015, then Revel LINQ was implanted for further diagnosis needs. Jan 1st, 2016, patient fainted at home, at that time, Reveal LINQ was activated automatically. A pause episode of 23 seconds was recorded. The conclusion was Clearly-high degree AV block. Consequently, a dual chamber pacemaker was implanted.

*(Provided by Dr. Baopeng Tang, The First Affiliated Hospital of Xinjiang Medical University)*

1. Edvardsson N. et al. Use of an implantable loop recorder to increase the diagnostic yield in unexplained syncope: results from the PICTURE registry (online).
Youth EP in China

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Youth EP in China
Chinese Society of Cardiac Pacing and Electrophysiology (CSPE) and Chinese Society of Arrhythmia (CSA) are platforms for young Chinese EP physicians.

Organization framework of the Sixth CSPE Youth Committee
Chairman of Committee: Congxin Huang (Renmin Hospital of Wuhan University)
Vice Chairman of Committee: He Huang (Renmin Hospital of Wuhan University), Min Tang (Fuwai Hospital, Chinese Academy of Medical Sciences), Yunlong Xia (Dalian Medical University Hospital), Bing Yang (Nanjing Medical University Hospital)

Organization framework of the First CSA Youth Committee
Chairman of Committee: Shu Zhang (Fuwai Hospital, Chinese Academy of Medical Sciences)
Vice Chairman of Committee: Gang Chen (Fuwai Hospital, Chinese Academy of Medical Sciences), Ying Tian (Beijing Chao-Yang Hospital, Capital Medical University), Gang Wu (Renmin Hospital of Wuhan University), Fengxiang Zhang (Nanjing Medical University Hospital)

CSPE & CSA Youth Committee held a speaking tour across the country to educate and train the young physicians. The first one was the clinical training project of Magnetic Resonance Implantable Heart Device. The clinical training project was targeted at improving the technique for magnetic resonance implantable heart device. The second one was the training program of Standardized Management and New Techniques of Arrhythmia among 100 counties across the country, 100 county hospitals were selected from the first stage list that includes 500 county-level hospitals.

Training at Fuwai Hospital
Training at Xuyi, Jiangsu province

CSPE & CSA Youth Committee, as always, supports the young electrophysiologists related competitions such as Excellent EP Physician of Carto and Young Physicians selected competition of Abbott and Medtronic Medical.

Professor Congxin Huang issued the certification
Professor Shu Zhang issued the certification
More than 60% of the Youth Committee members act as mentors to train and teach EP fellow at national arrhythmia training base and make a great contribution to expand electrophysiology team. The Youth Committee actively involved in national academic conferences. The youth forum was held for 2 consecutive times in Wuhan in 2015 and 2016, respectively. The western education tour lead by the Youth Committee of CSPE & CSA has finished two stops in the cities of Urumchi and Inner Mongolia and hosted many academic conferences from Nanjing, Ningbo, Guangzhou, and Shanghai.

The Youth Committee also participated in several international and national clinical trials. For example, the trial of 1.5 level prevention on sudden cardiac death (Improve SCA) launched by Professor Zhang Shu, the STAF II study led by Professor Verma from Canada, and the STABLR-SR study led by Professor Chen Ming Long from Nanjing.
The 10th Asia Pacific Heart Rhythm Society Scientific Session
In Conjunction with the Annual Meeting of the Japanese Heart Rhythm Society 2017

APHRS2017

JAPAN

Congress President
Ken Okumura
Saiseikai Kumamoto Hospital

Advancing Together in Heart Rhythm

September 14(Thu.)-17(Sun.), 2017  PACIFICO Yokohama

Important Dates (Tentative)

Abstract Submission Deadline: March 23rd, 2017
Registration Opens: The detail will be announced later
Registration Deadline: August, 2017
Final Program Available: August, 2017
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