Random thoughts on China and U.S. cardiovascular field at ACC annual meeting April 2014

American College of Cardiology (ACC) Annual Conference marked its 65th year anniversary in Washington DC. Thousands of cardiologists and scholars from all over the world attended the meeting. Many Chinese clinicians and researchers were at the meeting. The founding of ACC coincides with the founding of People’s Republic of China. However, only in the past 20 years after the 1980s those China clinical communities started to learn from organizations like ACC adopting the practices and advancement in patient care from the West.

Grace Fu Palma, the CEO of China Med Device, specializing in helping U.S. medical device companies entering and growing their business in China from clinical adoption to distribution setup, had the chance to meet with some of the leaders from both U.S. and China and discussed the key differences between the United States and China in the cardiovascular disease (CVD) field. She also selectively visited and interviewed the 300 exhibitors.

1. Startling increase of CVD patients (>230 million) and their deaths (3.5 Million death in 2012) in China. Cardiovascular diseases (CVD) in China are one of the top three diseases in China.
2. Room for development across the entire cycle of cardiac care with patients as the center of the focus from prevention, diagnosis, treatment, monitoring and rehabilitation. Emphasis from end-stage treatment to prevention and rehabilitation especially need society’s attention.
3. Large volume of patients and cases call for more evidence based medicine and quality improvement.

As one of the founders of Chinese American Heart Association (CnAHA) and life time member, Grace Fu Palma, CEO of China Med Device attended the "Chinese Night" activities hosted by CnAHA. Dali Fan, the present president of CNAHA, introduced S-ICD (Subcutaneous Implantable Cardioverter Defibrillator) approved by FDA. Dr Ning Jiang, the general secretary of CNAHA discussed in depth with physician Myat Soe about Health resources available to ethnic minority community programs like Chinese; Cynthia Taub, the chair of Structural Heart Diseases Committee, hosted the discussion of challenging cases.

CnAHA, founded eight years ago by a group of leading cardiologists with Chinese origin in the U.S. is a platform for Sino-U.S. cardiology professionals exchanges and facilitated collaboration between ACC, AHA, ASE and HRS with leading Chinese cardiology societies across different disciplines of cardiology.

Dayi Hu, MD, FACC, FHRS Chairman of GW-ICC, President Chinese Society of...
Cardiology President Chinese Heart Rhythm Society (CHRS), professor Samuel Dudley, Director of Cardiovascular Department at Brown University Medical Center, Mary Tom Chairman of the Greater Washington Area of the American Association of Chinese, physician Wuping Zhou, board member of CnAHA, pharmacist Alen Cheung, physician Anthony Chang, professor Yuxin Fan. Treasurer of CnAHA, physician Pengzhou, chair of the education committee, Grace Fu Palma, BOT member, and Alice Lara, president of Sudden Cardiac Death Foundation (SADS) attend the activity.

For more details, please visit: insert our site link here and post the rest on our website.

1. **The startling increase in CVD and end stage treatment**

China has five times the U.S. population approaching 1.4 billion. The startling rate of increase has many contributing factors, the passive life style, heavy smoking, lack of government concerted efforts on prevention and patient education, etc. According to the research by the Ministry of Health in China, there are more than 230 million CVD patients, 2 out of 10 adults are suffering from CVD. Interventional cardiologists are in demand in China to focus on saving lives and end stage treating. According to a society source, there are about 3,000 experienced and proven interventional cardiologists. They are often the department chiefs in large hospitals as well.

The incidence of stroke is also much higher in China. At least 2 million individuals are affected with the new-onset stroke each year, and the survivors with stroke are >7 million. The corresponding data for new-onset and prevalent myocardial infarction are 500K annually and 2 million respectively. About 3 million Chinese die of CVD annually, about a third of all causal deaths in China. Hypertension attributes to half of the CVD death. So 8,400 Chinese die from CVD every day or 1 death every 10 second!

The treatment and technology for CVD has grown exponentially. Using stent as an example, in 2004, there are 40K stents cases, stents imported from overseas. Five years later in 2009, the annual stent cases increased dramatically. PCI (percutaneous coronary intervention) surgeries increased from 25,000 cases in 2002 to about 531,000 cases in 2012; the number of coronary stent implantation rose from 40,000 units in 2002 to approximately 640,000 units in 2012. The government reimbursement helped the rapid growth of the stent segment. There are reimbursement rates for stents per procedure is around 30,000 Yuan ($5,000). The average cost of the stent varies depending on whether they are domestically made or imported. For the domestic brands, per stent cost is about 9,000 Yuan ($1,500) and foreign brand is at 15,000 Yuan ($2,500) on average. In 2007-2012 China’s cardiovascular stent market size grew at an AAGR of 20.3%.

In the case of ICD, United States has the highest ICD utilization rate. In 2007, United States had ICD ratio of 666/million and Europe was half of the U.S. In China, the ratio is about 1/million. The volume is very limited due to the skill and cost. For instance, one of the level III hospitals in the top 50 volume hospitals only performed 35 ICDs last year.
In the case of congenital heart disease, every year, 17.1 million lives are claimed by the global burden of cardiovascular diseases (CVD)—82% of which are in the developing world. Congenital heart disease in developing countries is of particular concern. In China, each year, only 20,000 kids are diagnosed and only 10,000 are being treated at an early age. So a big gap of untreated kids could range from 50K to 150K. This will create a big social and economic burn with longer term chronic diseases as well as the early death rates from the children.

Due to the long CFDA (formerly SFDA) registration process and other non-obvious reasons, TAVI has not been approved in China. Even though Edwards Sapien XT has been approved a few years ago by FDA, it has not obtained its approval in China. Only Edwards surgical aortic valve replacement device was cleared by CFDA a year ago. Medtronic CoreValve has received its recent FDA approval in the U.S. We expect it to be approved in China in the future. Medtronic seems to have put more resources in the emerging market like China with its CEO, Omar Ishmak, who has won his reputation during his GE Healthcare tenor to grow GE business multi-fold from its emerging market focus.

Despite both Edwards SAPIEN XT and Medtronic transcatheter heart valves have not been approved by CFDA in China, both valves have been used already under clinical investigation in China. The results are mixed. Surgical aortic valve replacement is most frequently done through a median sternotomy, and once the pericardium has been opened, the patient is put on a cardiopulmonary bypass machine, also known as the heart-lung machine, its costs and risks as compared to TAVI are obvious. Furthermore, all the clinical trials have proven the efficacy of the TAVI over SAVI. It will be a matter of time before TAVI starts to take off in China. There is certainly a first mover advantage with the first approved TAVI especially under the current patient physician healthcare environment.

2. Cardiac prevention and rehabilitation at its infancy

The leading cardiologist, Dr Dayi Hu emphasized the importance of prevention and rehabilitation a couple of years ago at the well-established annual Great Wall International Congress of Cardiology. This year marks its 25th year with tracks on prevention and rehabilitation. Please visit the link for more information at http://en.gw-icc.org/

Life style difference between the two countries has a lot to do with the increase of CVD. As the society gets more developed, people eat more fatty food and lack the habit of exercises from kids to adults. For instance, fitness centers are around every neighborhood in the U.S. Every weekend parents take kids to play sports. Whereas in China, there are fitness centers the number of them and the participation level are far less. I was staying in a very densely populated area with many high rise buildings last summer but it was very hard for me to find a short-term fitness center to join. Chinese tend to enjoy more passive activities such as messages, eating and spending a lot of time in front of TV etc.

Cardiac diseases such as coronary heart disease and strokes can be the top preventable diseases with the right government involvement and patients’ education in China. In the U.S. pamphlets educating people on life style changes and prevention of CVD can be seen in
many places such as library, primary care offices, community sponsored events etc. At ACC, Janet Wright, MD, executive director of Million Hearts, a U.S. Department of Health and Human Services initiative to prevent a million heart attacks and strokes by 2017 spoke how the model could be duplicated in other emerging countries. In China the mass level education and incentives to prevent CVD are still in the developmental stage. Given the size of China population and severity, the campaign in China could be called “Five Million Heart” Initiative. We certainly hope to see this happen in China.

ACC showcased a wide range of devices, drugs, services from start-up companies to large multinationals to address the prevention which we have not seen in the big cardiology shows in China from genetic testing prediction, automated sensory scales, a wide range of wearable vital sing monitoring devices and cloud based information system tied to iPhone and iPads etc. In the interventional applications, a savior to cath lab physicians is the semi-automated robotic systems from Corindus. It can help interventional cardiologists minimize their exposure to radiation and the extended strain on the back and neck with the heavy lead jackets. This is especially beneficial to Chinese few seasoned leading interventional cardiologists as they operate more days and several times the volume of the their counterparts in the U.S.

Other significant interventional devices are transcatheter heart valves from Medtronic and Edwards Lifescience. Edwards is working on its 3rd generation TAVI devices and has been in clinical trials. Medtronic obtained its FDA approval for its CoreValve. There has been clinical papers and clinical trials on both Edwards Sapien valves and Medtroni CoreValve. The physicians who participated in the clinical trials for the Edwards 3rd generation transcatheter heart valve believe that the 3rd generation has significant improvement over its previous generations especially in its safety and effectiveness.

Cardiovascular Systems, Inc. (CSI) is devoted to developing and commercializing innovative solutions for treating peripheral and coronary vascular disease. Our primary focus is helping physicians conquer even the most difficult disease states, including calcium, given the complications it presents for the millions who suffer from peripheral arterial disease (PAD) and coronary artery disease (CAD). CSI is committed to clinical rigor, constant innovation, and a defining drive to set the standard in safe, effective, economical medical devices that improve patient outcomes.

In the areas of LVAD, assisting or replacing the life-sustaining pumping function of the failing heart, Abiomed certainly made its big presence with a portfolio of products through its Impella platforms. The group of physicians we talked to from both the U.S. and China have very positive feedback on the role and benefit of Impella product line on the heart support and recovery. They are much needed in China as well given the rapid rise of CVD in China. TandemHeart is also present at ACC. Its representatives mentioned their advantages over Impella to us as well. Their cost is supposed to be significantly lower than Impella’s.

There are certainly a lot of other devices and new technology to talk about. Please feel free to contact us to get our unique perspectives at info@chinameddevice.com.

A panel of Chinese physicians highly praised the importance of ACC to China CVD future as published by International Circulation. Also Dr Dali Fan, the president of the Chinese American Heart Association, a non-profit society of cardiovascular professionals from research to clinical bed side made his comments as well.
Dali Fan  
Davis Medical Center of University of California

Dr Fan commented “I attended ACC Annual Conference every year since more than ten years ago. In the past, the size of ACC convention was larger. With policies introduced gradually, ACC commercial level became more and more weak. A couple of years ago, commercial level decrease to the bottom; now it may have increased partially. A feature of the ACC in this year is that the subspecialty content such as electrophysiology and echocardiography has decreased and intervention content increased, particularly those in structural heart disease, last year’s mitral valve left MitraClip implant and this year’s plugging technology with FDA approval. In addition, the increasing popularity of some basic concepts, such as new guidelines of blood pressure and blood fat, are also the highlights of the conference.”

Aiming Dang  
Fuwai Cardiovascular Hospital of Chinese Academy of Medical Sciences

Participating in the ACC conference, we got a lot of new information about the progress of cardiovascular field both in clinical practice and clinical research, which had certain guidance and reference function to the future in China.

Yong Li  
Huashan Hospital of Fudan University

I am particularly interested in the new technology and new drugs that could be beneficial to patients in prevention and treatment of cardiovascular disease. I listened to yesterday’s opening ceremony and the clinical project report. And a part of the latest clinical research results published this morning. I think the information and progress is very helpful for clinical cardiovascular disease prevention for future study.

Yuanming Zhang  
First Affiliated Hospital of Xinjiang Medical University

I attend major conferences in the cardiovascular fields each year, such as the ACC, AHA and ESC. They have more actual data that are significant for clinical practice guiding.

Xinjun Zhang  
West China Hospital of Sichuan University
Every year, many Chinese experts came to the ACC conference to communicate with foreign experts that can produce some scientific research breakthrough, which contribute great help for cardiovascular research to China.

The advancement in both clinical guidelines along with practice criteria certainly helps developing countries like China to avoid unnecessary steps in its clinical education and care development. The wide range of basic prevention devices to the leading edge technology latest functional valves will also have significant impact on China. Unfortunately the common comments from the group of Chinese physicians is that top more than 1,000 level III hospitals in China may have the best medical equipment in the world but the concept of cardiac cycle from prevention to intervention at the mass level is still in its infancy.

Please contact info@chinameddevice.com or visit www.chinameddevice.com for the latest updates or a consultation on the CVD status in China.