Geriatric cardiology and the Great Wall International Congress of Cardiology 2015

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The burgeoning geriatric population worldwide has resulted in an unprecedented challenge to the cardiology community. Cardiovascular disease is the major cause of morbidity and mortality in the elderly population, but its recognition and management are characteristically confounded by substantial comorbidities, polypharmacy, and other complexities of care, not encountered in younger cardiac patients.

In the opening Plenary Address, Great Wall International Congress of Cardiology (GWICC) 2015 President, Dr. Chang-Sheng Ma, highlighted the increase in life expectancy in China, from 68 years in 1990 to 76.3 years in 2013. Although elderly individuals currently constitute about 14% of the Chinese population, that demographic is expected to increase by 15% by 2030, with a forecast that by that time China will become the world’s most aged society. In China, with a 1.4 billion population, those > 65 years are expected to increase 17.2% by 2030 and 26.8% by 2050. That number of 350 million Chinese elderly is greater than the total U.S. population. Predicted annual cardiovascular events in China are projected to increase by 50% between 2010 and 2030 based on population aging and growth alone.

Comparably in the USA, the older adult population is increasing rapidly as longevity concomitantly increases. Those older than age 65 are estimated to be 83.7 million by 2050, almost double the 43.1 million in 2012. The most rapid increase is among the oldest old, > 85 years.

The Joint American College of Cardiology (ACC)-GWICC symposium on Geriatric Cardiology entitled “Recent Advances in Reducing Cardiovascular Mortality in the Elderly” explored some of the complexities of cardiac care at elderly age.

Dr. Nanette K Wenger addressed “Management of ST-elevation myocardial infarction (STEMI) in older adults,” defining that advanced age is a powerful independent risk factor for adverse outcomes following myocardial infarction (MI). This is because atypical symptoms of myocardial ischemia delay recognition, there is a greater burden of pre-existing multimorbidity, there is less organ reserve, a greater time delay to hospital presentation, and, in the literature, evidence for a lesser likelihood of receiving recommended treatments and increased likelihood of treatment-related complications. Contributory geriatric features include multimorbidities, polypharmacy, frailty, altered body composition and decreased cognition.

In the USA, 35% of MI occur in patients 75 years and older, and 11% of these patients are older than age 85. STEMI is less common than non-ST-segment elevation myocardial infarction (NSTEMI), although absolute numbers of STEMI increase with increasing age. Reperfusion is associated with improved STEMI survival in older adults, with percutaneous coronary intervention (PCI) favored over fibrinolytic therapy because of the lesser risk of hemorrhagic stroke and myocardial rupture. Primary PCI decreases recurrent ischemic events and the need for subsequent target vessel revascularization. Discharge medications should include aspirin, a P2Y12 inhibitor for at least one year with preference for ticagrelor versus clopidogrel, an ACE inhibitor, a beta blocker, and a statin. There is a greater absolute risk reduction with statin therapy in patients age 65 to 75 than in younger patients. Approaches designed to improve outcomes of older adults with STEMI include community and facility systems for acute reperfusion, geriatric dosing of guideline-directed medical therapies, avoidance of bleeding complications, early mobilization and referral to cardiac rehabilitation and precise communication and provision of information at all care transitions.

Dr. Wei Dong discussed “The predictors of the clinical outcome of congestive heart failure in elderly patients.” He cited as characteristics of advanced heart failure admission...
to hospital or emergency room two or more times during the prior year, deterioration of renal function, weight loss without other significant cause, ACE inhibitor intolerance due to hypotension and/or impaired renal function, beta blocker intolerance due to hypotension and/or heart failure symptoms, persistent diastolic blood pressure (BP) < 90 mmHg, progressive decrease in serum sodium level, symptoms limiting activities of daily living, inability to walk more than a block due to fatigue or dyspnea, progressive increase in diuretic dosage, and implantation of an ICD.

The incidence of heart failure increases with age from 20 per 1000 of the USA population 65 to 69 years old, to 80 per 1000 in USA persons older than 85 years of age. The results of a 2003 epidemiologic study in the Chinese population showed the incidence of heart failure between ages 35 and 75 as 0.9% and the number of patients with heart failure as 4.5 million. A 2013 meta-analysis showed that the prevalence of heart failure in China had increased by 0.4%, reaching 1.3%. Dr. Wei Dong cited the multi-causalties of advanced heart failure in elderly patients, with more than 65% having two or more cardiovascular etiologies, one as a major contributing factor and the other a precipitating factor. Over 95% of elderly heart failure patients have more than one non-cardiac disease with the most common non-cardiac comorbidities being hypertension, diabetes mellitus, and chronic obstructive pulmonary disease. The multi-complications include arrhythmia, renal failure, and electrolyte and acid-base disturbances. He described the “golden triangle” of angiotensin-converting enzyme inhibitors (ACEI) or angiotensin receptor blockers (ARB) therapy, beta blockers, and aldosterone antagonist therapies as improving symptoms, left ventricular function and survival. Dr. Wei Dong indicated that age was one of the six variables in the European Society of Cardiology predictive models for mortality rate ratios. Other factors that worsen the prognosis of heart failure in elderly patients include anemia, malnutrition, and cognitive dysfunction. He highlighted that old and very old patients with advanced heart failure often do not acknowledge the seriousness and severity of their disease and that their communication with physicians predominantly focused on curative treatment. Therefore, aspects such as self-management of the disease, dealing with emergency situations, and end of life issues should be addressed more prominently by clinicians with their elderly heart failure patients. An advanced care planning program for heart disease in older individuals could be an option to improve patient-centered care.

Dr. Cun-Tai Zhang’s presentation on “The goal of blood pressure control in elderly patients” emphasized the high prevalence (57%–59%) and low control of hypertension in the elderly in China, 32.7% and 7.6% control rates in females and males respectively. The 2011 Chinese Expert Committee of Hypertension guidelines recommend BP below 140/90 mmHg for patients > age 80. For elderly patients with comorbidities, BP < 150/90 mmHg or < 140/90 mmHg is recommended if well tolerated.

Dr. Cun-Tai Zhang stated that cardiovascular risk increased both with age and with BP levels in elderly hypertensive patients from the Asia Pacific Cohort Study and that a 10–14 mmHg reduction of systolic pressure and a 5–6 mmHg reduction of diastolic pressure is associated with a 2/5 reduction of stroke, a 1/6 reduction of coronary heart disease, and a 1/3 reduction of total events. Therapy strategies for the elderly hypertension patients should include low-dose, multiday therapy; gradual decrease in the BP; caution in drug selection and close managing of BP; individualized therapy; ambulatory BP monitoring at home; and monitoring the orthostatic pressure to prevent hypotension and volume depletion. For patients 80 years of age or older, a target BP of 140/90 mmHg is recommended.

Dr. Anne Curtis reviewed “Anticoagulation for atrial fibrillation in the elderly,” noting that the median age of U.S. patients with atrial fibrillation (AF) is 75 years, and that strokes attributable to AF increase markedly with age. The prevalence of AF in USA elderly is 9%; by 2050, 5.6 million people in the USA will be diagnosed with nonvalvular AF, 50% of whom will be older than age 80. Stroke is the most common and devastating complication of AF, with approximately 15%–20% of all strokes attributable to AF; the proportion of strokes attributable to AF increase markedly with age. The challenges to maintain the target international normalized ratio (INR) include the exaggerated response to anticoagulation at elderly age and the characteristic polypharmacy of elderly patients. Risk factors for bleeding on warfarin include an INR ≥ 4.0, older age, and the first 90 days of therapy. Anticoagulation is indicated for most elderly patients with choice of warfarin or the newer oral anticoagulants based on patient characteristics and preferences. With warfarin therapy, time in target range (TTR) > 70% decreased stroke risk and TTR > 40% improved survival.

Dabigatran in a Medicare population compared with warfarin decreased the risk for ischemic stroke, decreased the risk for intracranial bleeding, and increased the risk for major gastrointestinal bleeding. Rivaroxaban versus warfarin in patients > 75 years of age had comparable efficacy and no difference in major bleeding events (increased gastrointestinal bleeding, decreased intracranial hemorrhage with rivaroxaban). Non-vitamin K oral anticoagulants (NOACs) are as effective as warfarin in reducing stroke or systemic embolism (superior for apixaban, dabigatran 150 mg). NOACs are as safe as warfarin regarding major bleed-
ing (similar for rivaroxaban, dabigatran 150 mg; decreased with apixaban, edoxaban 30 and 60 mg). Reduction in all-cause mortality compared with warfarin was significant for apixaban and edoxaban 30 mg. Anticoagulation to prevent thromboembolism is indicated in elderly patients with AF.

A review published subsequent to GWICC 2015 entitled “Improved cardiovascular disease outcomes in older adults” summarized that the biology of aging is conducive to cardiovascular disease, such that the prevalence of all cardiovascular disorders are increasing as more adults survive into old age.\(^1\) Management issues for cardiovascular disease in older adults are predictably complicated by multimorbidity, polypharmacy, frailty, and other complexities of care that increase management risk (such as bleeding, falls, and rehospitalization) and uncertainty of outcomes. The review summarizes state-of-the-art advances in heart failure, acute coronary syndromes, transcatheter aortic valve replacement, atrial fibrillation, amyloidosis, and cardiovascular disease prevention. Conceptual benefits of therapies are considered in relation to the challenges and ambiguities inherent in their application to older patients.

References