The cardiovascular system is involved in the aging process more than any other system. In 2001, 29,890 people older than 90 years old lived in Taiwan; the annual mortality rate was about 19.31%. In New Zealand, forensic autopsies for 319 patients who died after age 90 found only 5% of them attributed to old age or senile debility. Common causes of death were ischemic heart disease (23%), acute myocardial infarction (8%), cerebrovascular accident (6%), rupture of aneurysm (5%), and multifactorial (19%). From this Auckland experience, we know that the elderly do not often die of old age, but instead succumb to cardiovascular disease in particular. People live more than the actuarial survival rate, surpassing 90 years or more. When these people have cardiac problems, what kind of philosophy should we have towards them? Conservative or aggressive? This is really a problem that cardiologists have to face.

In this issue, there a report of percutaneous coronary intervention (PCI) in 12 cases of coronary artery disease among nonagenarians. The author claims to be the first to report PCI in this age group, and also notes very few reports in the literature.

Over the past century, life expectancy in most countries has gained unprecedented growth. The very elderly, 80 years or over, represented the fastest-growing segment of our population. Solichova et al. followed 38 nonagenarians, aged 92 +/- 2 (ranged 90-100) years on medical therapy only. The mortality rate was about 55% in a year. His findings may form a basis for prospective interventional trial in this age group. However, we have to aware that the annual mortality rate in Taiwan for people more than 90 is less than 20% only.

Coronary artery bypass graft, on the other hand, is the most invasive therapy for coronary artery disease. Vermeulen et al. reported 127 patients, age 80-94, mean 82.2 years, who underwent cardiac surgery; the hospital mortality was 7.1%, late mortality 23% (mean follow-up 2 years), and actuarial survival at 9 years was 70%. He pleaded that cardiac surgery should not be refused solely because of old age.

Percutaneous coronary intervention is also a fast-growing segment in the therapy for coronary artery disease. Age-specific study with PCI for people in their 70s, 75s, 80s, are available all over the world. One patient more than 100 years old had PCI in this country before. These studies tell us that the success rates of intervention for any age group are the same, but the procedure mortality risk is five-fold higher in patients older than 80 years compared with those less than 60. The success rate of PCI is highly individualized; it depends more on the operator experience. Give-up syndrome is common among the very elderly, since they think that they have lived more than what they expected. They may be difficult to convince for a PCI, or they may even be unable hear what you explained to them. Fortunately, our national insurance policy need not consider the medical expenses if stenting is not necessary in that particular situation.

Interventional therapy is not the only issue we have to be concerned the elderly in their 90s. Quality of life is more important than long-term survival for these people. Of course, survival during and after invasive therapy should be weighed against noninvasive medical treatment before the procedure. Also, avoiding procedural complications is prudent. For example, transradial approach may be less traumatic; early intervention before the patient ventricular function deteriorates, stenting to optimize adequate vessel diameter, shortening procedure time, encouraging early ambulation and short hospital stay are just some of the measures we can undertake.

One must consider that elderly people may have more calcified or total occluded proximal lesions, poor left ventricular function and multiple co-morbid conditions. Here cardiac surgery should be considered first. In fact, the cardiac surgery provides better survival rate than PCI, even in the elderly. However, if the patient refuses cardiac surgery, when PCI is difficult, and when
complications are highly probable, it is best not to do any thing. With this, we do not need prospective and comparative study proving the efficiency of PCI in nonagenarians.

REFERENCES

10. Hung JS. Personal communication.