

*Editorial Comment*

## What Is the Goal of Antihypertensive Treatment in Very Elderly People?

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In Japan, the proportion of elderly persons has exceeded 20%. In some European countries, the proportions of elderly persons are also high. However, there has been no rapid increase from approximately 5% to more than 20% over about 50 years in any other country. The proportion of persons aged over 65 years is estimated to exceed 20% between 2020 and 2030 in advanced countries and between 2030 and 2040 in China (World Population Prospects: The 2006 Revision: <http://www.stat.go.jp/data/sekai/zuhyou/0202.xls>). Internationally, many investigators are focusing on strategies to manage the rapid aging society in Japan. In this sense, a study involving elderly persons in Japan may be significant.

In the Hypertension in the Very Elderly Trial (HYVET) (1) recently published, whether antihypertensive treatment should be performed in hypertensive patients aged over 80 years was examined, regarding the onset of stroke as a primary endpoint. A previous meta-analysis (2) and HYVET pilot study (3) indicated that, although antihypertensive treatment reduced the risk of stroke and heart failure, the risk of death was not changed or increased. The results of HYVET showed that antihypertensive treatment significantly reduced the risk of death in hypertensive patients aged over 80 years. I emphasize that selection of stroke as a primary endpoint in the HYVET may be significant with respect to the goal of treatment in extremely elderly patients with hypertension.

Rowe and Kahn proposed the distinction between usual and successful aging as nonpathologic states (4). They define successful aging as follows: low probability of disease and disease-related disability, high cognitive and physical functional capacity, and an active life (5). Stroke, as a primary endpoint in the HYVET, is one of the most important factors affecting

successful aging. In a substudy of the HYVET, other parameters directly influencing the quality of life (QOL) and activities of daily living (ADL), such as cognitive function and fracture in elderly persons, were investigated. Even if the mortality rate is not reduced, treatment that ameliorates parameters influencing QOL, ADL, and productive activity may be significantly valuable for such elderly persons. Indeed, it is important to examine the onset of cardiovascular disorders and mortality rate as concrete endpoints even in patients aged over 80 years. Furthermore, the reduction of cognitive function or physical activity and the onset of dementia may also be important endpoints.

The article “Cognitive dysfunction and physical disability are associated with mortality in extremely elderly patients” described by Hoshida *et al.* (6) in this issue of *Hypertension Research* is important from the perspective of information dissemination from Japan characterized by a super-aged society to the world. In addition, it suggests that cognitive function and physical activity are surrogate markers to estimate the concrete endpoint of mortality. Many studies involving elderly persons have indicated that “dementia” is a prognostic factor for mortality. Of interest, the above article by Hoshida and his colleagues further demonstrated “mild cognitive impairment” may also be a prognostic factor in persons aged over 80 years.

Cognitive function and physical activity are continuous variates, and vary among measurements. Therefore, measurement methods should be further investigated. The visual working memory and the get-up-and-go test, which they employed, may be practical, considering the simplicity and the time required. In particular, the results showed that these

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procedures were prognostic factors for total and cardiovascular mortality, independent from age and conventional risk factors, suggesting that cognitive function and physical activity reflect accumulated risks including nutrition and mental stress, which are not reflected by conventional risk factors.

In the article described by Hoshida *et al.* (6), there was a negative correlation between blood pressure and cognitive function in the subjects. This finding may be paradoxical, considering that hypertension is a risk factor for dementia. If antihypertensive treatment reduces cognitive function, we cannot simply recommend it, considering QOL and productive activities even though antihypertensive treatment reduced the risk of stroke as demonstrated by the HYVET. We look forward to the results of the HYVET substudy regarding cognitive function of which improvement or preservation is an additional important goal of antihypertensive treatment.

Extremely elderly patients have various disorders other than hypertension. There are marked individual differences in the condition despite the same disease. The number of such populations has rapidly increased, and no scientific basis for treatment has been established. Antihypertensive treatment influences blood pressure values and the prognosis of arteriosclerotic disorders. However, the QOL, cognitive function, and productive activities may be more important for individual patient from the viewpoint of motivation for treatment.

Cognitive function and physical activity may be not only surrogate markers to predict the cardiovascular events in clinical practice but also the goals of antihypertensive treatment *per se*. New strategies for treatment of hypertension should be developed based on such a viewpoint.

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