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Reduce the Risk of Cerebral Infarction by Early Detection of Carotid Plaque

Situation

Cerebrovascular diseases had been ranked as the leading cause of death in Japan for three decades after World War II. However, with public education efforts aimed at preventing high blood pressure along with the development of innovative technologies for diagnostic imaging, minimally invasive treatment and medicines, the number of deaths from these diseases has been decreasing since the early 1970s. The Ministry of Health, Labour and Welfare (MHLW) has confirmed this decline in number of deaths by and patients of cerebrovascular diseases with its statistical data (number of deaths: down by 12 percent in past 16 years, number of patients: down by 8 percent in past 16 years)

On the other hand, the proportion of cerebral infarctions within the number of cerebrovascular disease-related deaths has been increasing year by year; it was 13.3 percent in 1960 and up to 59.2 percent in 2012. The spread of the western food culture and the increasing numbers of diabetes and hyperlipemia patients are recognized as general causes for the increase. In addition, the number of cerebral infarction patients makes up a large part of the total number of patients suffering from cerebrovascular diseases, recording about 66 percent in 2011. With the fact that a cerebral infarction patient more likely needs in-hospital treatment, compared to patients of other types of cerebrovascular diseases, the government of Japan recognizes cerebral infarction as one of the diseases that must be tackled in order to slow down increasing medical expenses. In the area of nursing care, patients and caregivers responded to a survey conducted by the MHLW by saying that the main reasons for having or giving nursing care are cerebrovascular diseases (22 percent of the total cases in 2010). Thus, the issue of cerebral infarction relates to another subject of the government's future healthcare policy: the transfer from in-hospital care to home healthcare (nursing care).

The main causes of cerebral infarction are stenosis or occlusion of vascular lumen by atherosclerotic plaque and arterial embolism by vulnerable plaque. The carotid artery is one of the body parts where atherosclerosis occurs more frequently and it is well recognized that the use of MRI and ultrasound systems are effective to examine the condition of the plaque, and even its vulnerability. Furthermore, a diagnosis with these two medical systems gives important information to doctors who decide on surgical treatment. Combined with another big benefit for patients — minimally invasive examinations — the validity of diagnostic imaging with MRI and ultrasound to detect the causes of cerebral infarction in the early stage is gaining support among doctors. Working groups organized by medical specialists of the Japan Brain Dock Society and the Japan Academy of Neurosonology are currently making efforts on improving the precision of the examinations and spreading the use of MRI and ultrasound to hospitals and clinics.

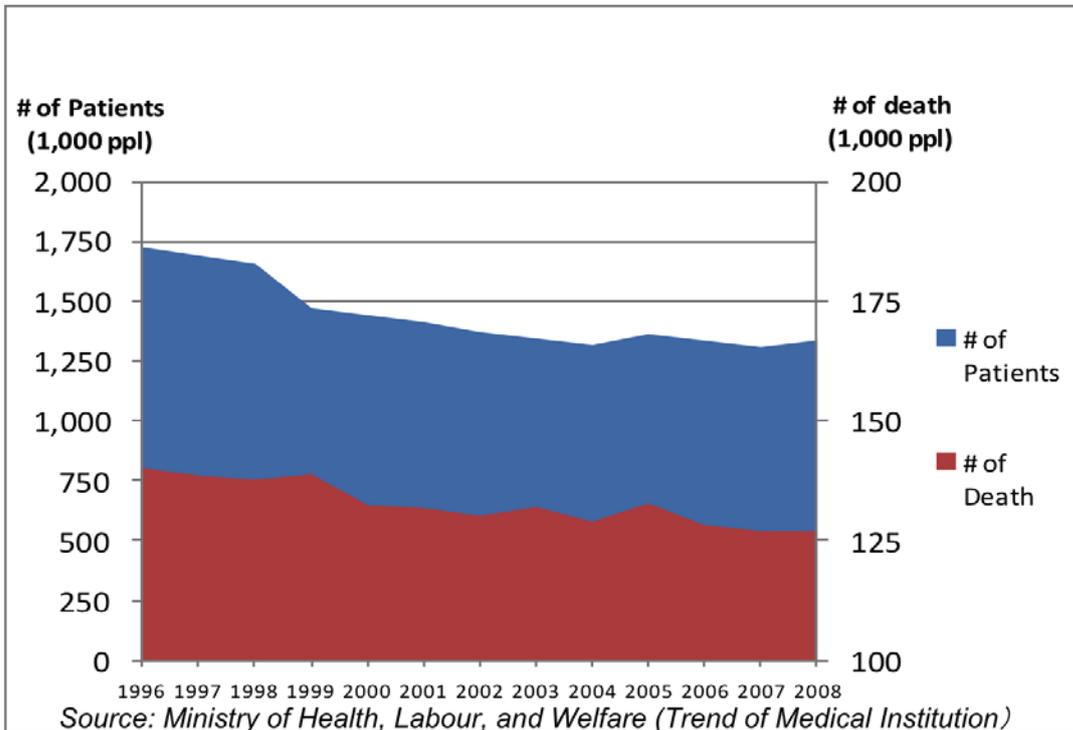
Current Policy

The government of Japan continues to organize public education activities for prevention and early detection of cerebral infarction. Some local governments provide citizens with subsidies to take a medical examination of the brain, and private sector companies and health insurance associations should prepare package programs of financial support for examination of cerebral infarction. However, opportunities for examination are not fairly given to all citizens in Japan due to geographical or financial reasons. Moreover, when comparing the government's enthusiasm for building public awareness of the importance of using ultrasound systems for breast cancer screening, there is much work to be done in providing access to, and standardizing, examinations of carotid plaque in all regions of Japan.

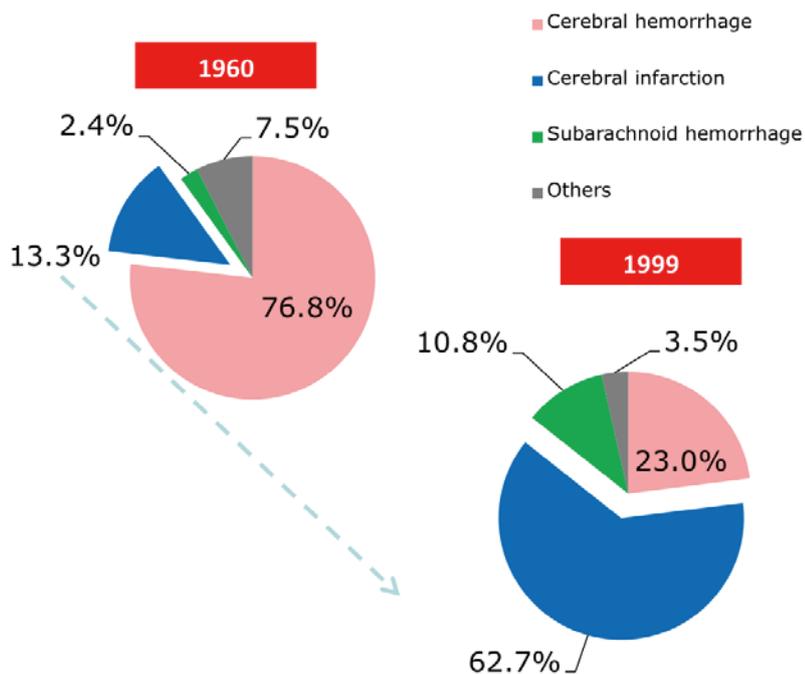
Recommendations

- To promote early detection of carotid plaque and to maximize quality of life of all citizens, increase public awareness of the importance of carotid plaque examinations.
- Develop more financial support programs for carotid plaque examinations to provide equal healthcare opportunities across the country.

15. Deaths Caused by and Patients of Cerebrovascular Diseases

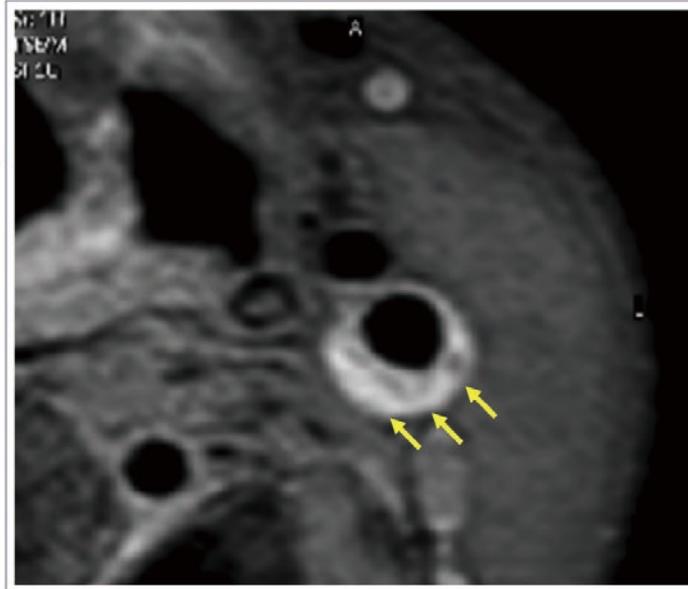
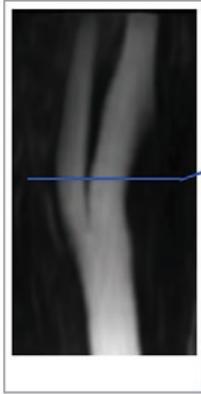


15. Deaths Caused By Cerebrovascular Diseases



Source: Ministry of Health, Labour, and Welfare (Vital Statistics)

15. Vessel Wall Imaging Done by MRI



Courtesy: Tohoku University, Japan