Chronic Subdural Hematoma in Elderly People: Present Status on Awaji Island and Epidemiological Prospect

Hiroshi KUDO, Keiichi KUWAMURA, Ichirou IZAWA, Hideki SAWA
and Norihiko TAMAKI*

Department of Neurosurgery, Hyogo Prefectural Awaji Hospital, Sumoto, Hyogo;

**Department of Neurosurgery, Kobe University School of Medicine, Kobe*

Abstract

The epidemiological aspect of chronic subdural hematoma (CSH) in the elderly who are 65 years old or older was evaluated on Awaji Island with about 170,000 inhabitants. The overall incidence of CSH was 13.1 per 100,000/year, 3.4 in people under 65 years old, and 58.1 in the elderly. The elderly were 17.7% of all inhabitants. If these incidences of CSH are extrapolated to all of Japan in the year 2020, the incidence will be 16.3 per 100,000/year. This suggests that CSH may become the most common neurosurgical condition.

Key words: chronic subdural hematoma, aged people, epidemiology

Introduction

Chronic subdural hematoma (CSH) occurs especially frequently among old people.^{1,3)} The number of old people is increasing steadily in Japan. A Ministry of Health and Welfare Survey found that the elderly who are 65 years old or older accounted for 11.2% of all people in 1988.²⁾ In 2020, the population of Japan will be 135,304,000, of which 23.6% will be the elderly.²⁾ Awaji Island in Hyogo prefecture presently has a population of 168,000, of which 17.7% is the elderly. We investigated the present incidence of CSH on Awaji Island and discuss the epidemiological problems.

Clinical Materials and Methods

Sixty-six patients (54 males and 12 females) with CSH were admitted to our institute from January, 1986 through December, 1988. Fifty-two patients (43 males and 9 females) were the elderly. The incidences of CSH in the towns and city on Awaji Island were calculated to assess the epidemiological trends.

Results

Awaji Island consists of one city (Sumoto) and ten towns. The incidence of CSH per 100,000/year in the elderly ranged from 8.6 to 153.5, with a mean of 58.1. Figure 1 shows that some areas (the towns of Goshiki and Ichinomiya) colored pink had high incidences, while areas in yellow (the towns of Awaji, Hokutan, Higashiura, Seitan, and Nantan) had low incidences. Fourteen patients under 65 years old were treated for CSH at our hospital. The incidence of CSH patients under 65 years old was a mean of 3.4 per 100,000/year. The total incidence of CSH was a mean of 13.1 ranging from 4.0 to 36.1 per 100,000/year (Fig. 2). The mean was 13.6 in the green areas (the towns of Tsuna, Midori, and Mihara, and Sumoto city) and 34.0 in the pink areas. The elderly were 33–100% (mean, 79%) of all cases. The population contains 21.4% elderly in the pink areas and 15.8% in the green areas.

The epidemiological trends can be assessed, if the incidences of CSH on Awaji Island are applied to Japan until the year 2020. The incidence of CSH in the elderly as a part of the total population will be: $58.1 \times 23.6/100 = 13.7$ per 100,000/year. The incidence of CSH in people under 65 years old in the total population will be: $3.4 \times 76.4/100 = 2.6$ per

Fig. 1 Incidences of CSH in the elderly who are 65 years old or older on Awaji Island (/100,000 people/yr).

Fig. 2 Incidences of CSH in total population on Awaji Island (/100,000 people/yr). Over 65y.o. includes 65 years old.

100,000/year. Therefore, the total incidence of CSH will be 16.3 (= 13.7 + 2.6) per 100,000/year in Japan in 2020.

Discussion

The epidemiological study of Awaji Island shows that the incidence of CSH was lower in the yellow areas, compared with other areas. Although our neurosurgical service covers the whole island, people in these areas facing Kobe or Tokushima areas, may consult with other clinics in these areas, because of easy access. People in the pink and green areas are more likely, therefore, to form a representative sample. The pink areas had a much higher incidence of CSH in the elderly than the green areas. Two reasons may be considered: age distribution and environment. The elderly are 15.8% of all inhabitants in the green areas, but 21.4% in the pink areas. Furthermore, the pink areas are mountainous and the green areas flat plains. People in the pink areas, therefore, have more opportunities for accidents than people in the green areas.

Very few papers discuss the incidences of CSH (Table 1). Fogelholm *et al.*¹⁾ reported 1.72 per 100,000/year in all people and 7.4 per 100,000/year in people over 70 years old in Helsinki. Weber³⁾ reported 1 or 2 per 100,000/year in all people in Switzerland in 1968. The incidences in our series are much higher than in the Helsinki and Switzerland series. The mean incidences for the whole island were 13.1 per 100,000/year in all people, 3.4 per 100,000/year in people under 65 years old, and 58.1 per 100,000/year in the elderly. At present, the elderly are 17.7% of the entire population of Awaji Island.

In Japan, the elderly will account for 23.6% of the population in 2020.²⁾ If the incidence of CSH on Awaji Island can be extrapolated to Japan in 2020, the incidence of CSH in the elderly will be approxi-

Table 1 Summary of incidences

Place (Year)	Ratio of the elderly (≥65y.o.) (%)	Incidence (/100,000 people/yr)		
		<65y.o.	≥65y.o.	All people
Switzerland (1968) ³⁾	—	—	—	1 or 2
Helsinki (1975) ¹⁾	—	—	7.4*	1.72
Sumoto city (1988)*	15.8**	3.6	61.5	12.7
Goshiki and Ichinomiya towns (1988)*	21.4	2.1	150.8	34.0
Whole Awaji Island (1988)*	17.7	3.4	58.1	13.1
Japan (2020) ²⁾	23.6	(3.4)	(58.1)	16.3*

*Present study. **Mean value in Sumoto city and Tsuna, Midori, and Mihara towns. *70–79 years old. y.o.: years old.

mately 13.7 per 100,000/year and the total incidence will be 16.3 per 100,000/year. However, these figures may not be accurate, because the yellow areas are included in these calculations. If the yellow areas are excluded, the incidence of CSH will be much higher. However, the approximate data indicate that CSH will become more frequent and may be the most common neurosurgical condition.

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Address reprint requests to: H. Kudo, M.D., Department of Neurosurgery, Rokko Island Hospital, 6-11 Naka, Koyo-cho, Higashinada-ku, Kobe 658, Japan.