Analysis of Subarachnoid Hemorrhage According to the Japanese Standard Stroke Registry Study

—Incidence, Outcome, and Comparison With the International Subarachnoid Aneurysm Trial—

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Abstract

The data for subarachnoid hemorrhage (SAH) from the Japanese Standard Stroke Registry Study (JSSRS) were analyzed to evaluate the incidence of SAH according to age, neurological grading and outcome, and outcome of surgical clipping, for comparison with the International Subarachnoid Aneurysm Trial (ISAT). From the JSSRS data, the peak incidence of SAH was the sixth decade in males and the eighth decade in females. The overall mortality was 22%, and good outcome, better than 2 on the modified Rankin Scale (mRS), at discharge was achieved in 58% of cases. Radical treatment was performed in 62.6% of all SAH cases, 58.7% with surgical clipping and 3.2% with endovascular coiling. Poor outcome, worse than 3 on the mRS, occurred in 26.6% of patients under 60 years, 47.3% between 60–69 years, 54.2% between 70–79 years, and 72.9% 80 years or over. From the ISAT data, 88% of patients were in grades 1–2 of the World Federation of Neurological Surgeons (WFNS) grading system in both surgical clipping and endovascular coiling groups, 94% in grades 1–3, and 98% in grades 1–4. Poor outcome, worse than 3 on the mRS, at 2 months occurred in 23.4% and 36.4% of patients with endovascular coiling and surgical clipping, respectively. Limiting the patients in the JSSRS to WFNS grades 1–2 showed poor outcome, worse than 3 on the mRS, occurred in 12.8%, and in grades 1–3 and 1–4 occurred in only 16.3% and 23.0%, respectively.

Key words: subarachnoid hemorrhage, Japanese Standard Stroke Registry Study

Introduction

Elderly patients with subarachnoid hemorrhage (SAH) are increasing in number with the aging of the population in Japan. The International Subarachnoid Aneurysm Trial (ISAT) described significantly better outcome with endovascular coiling than with surgical clipping in terms of survival free of disability at 1 year. Here, we analyze the data of patients with SAH from the Japanese Standard Stroke Registry Study (JSSRS).

Methods

Four hundred seventy patients with SAH were analyzed from the JSSRS registered from January 1, 2000 to December 31, 2001. The data were analyzed and reviewed to assess the incidence of SAH according to age, neurological grading and outcome, and outcome of clipping, for comparison with the ISAT.

Results

The peak incidence of SAH occurred in the sixth decade in males, but the eighth decade in females (Fig. 1). The distribution of World Federation of Neurological Surgeons (WFNS) grade according to sex is shown in Fig. 2. Overall outcome according to the modified Rankin Scale (mRS) of SAH is indicated in Fig. 3. The mortality was 22%, and good outcome of less than 2 on the mRS occurred in 58% of patients. Radical treatment was performed in 62.6% of all patients with SAH, 58.7% with surgical clipping and 3.2% with endovascular coiling. Poor outcome, worse than 3 on the mRS, occurred in 26.6% of patients under 60 years, 47.3% aged 60–69 years, 54.2% aged 70–79 years, and 72.9% aged 80 years or over.

The data for surgical clipping in the JSSRS and the ISAT were compared (Fig. 4). In the ISAT, 88% of patients were in WFNS grades 1–2, 94% were in grades 1–3, and 98% were in grades 1–4. Poor outcome, worse than 3 on the mRS, at 2 months occurred in 25.4% and 36.4% of patients with endovascular coiling and surgical clipping, respectively. Limiting the patients to WFNS grades 1–2 showed poor outcome, worse than 3 on the mRS, occurred in 12.8% of patients in the JSSRS, and limiting to grades 1–3 and 1–4, occurred in 16.3% and 23.0%, respectively, in the JSSRS.
Discussion

The peak incidence of SAH in the JSSRS occurred in the sixth decade in males and the eighth decade in females. This pattern was the same as that found in our institute. Mortality of patients with SAH in the JSSRS was 22%, which was relatively low compared to previous reports, due to the secondary emergency hospital in this study.

Continuous improvement of surgical technique and information, in other words art and science, is required for neurosurgeons. The JSSRS was started in 1999 in Japan, but only some neurosurgical institutes could participate. Because evidence-based medicine relies on large volume data bank systems, we must collect new neurosurgical evidence in Japan by ourselves, especially for SAH by taking part in this study. We cannot compare the data of the ISAT and JSSRS directly, so only simple comparison is possible. There are several problems with the JSSRS, but it is important to continue data base systems in Japan.

References

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