

学位論文の要旨

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学位論文名 The Key to Improving Prognosis for Aneurysmal Subarachnoid Hemorrhage Remains in the Pre-hospitalization Period
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論文内容の要旨

INTRODUCTION

Despite advances in neurosurgical management, aneurysmal subarachnoid hemorrhage (aSAH) still has high mortality and morbidity. There had been many warning reports that admission delay results in worsening of prognosis. However, we still cross patients with aSAH who had got worse by delayed admission. The present study shows the situation with regard to hospitalization of patients with aSAH in a rural area of western Japan for 17 years, revives this problem in comparison with previous reports worldwide and clarifies how delaying hospital admission after aSAH contributes to worse prognosis even today.

MATERIALS AND METHODS

Four hundred twenty-one consecutive patients are the basis for this study. Six cases with proven no aSAH and 11 cases with missing data for this study were excluded. Consequently, the study population was comprised of 404 patients who were diagnosed with or strongly suspected of having cerebral aneurysm. Patients arriving at our hospital later than 2 hours after the first attack of severe headache or consciousness disturbance were regarded as delayed admissions. The condition of each patient was assessed at the time of onset and admission using Hunt and Kosnik grading (H & K) based on the patient's history or related to the referring physicians examination. Cause of delay was classified into five categories: patient delay (PD), doctor delay

(DD), transportation delay (TD), no delay (within two hours of onset)(ND), and others (Others). For additional investigation, patients were divided into two groups, *i.e.*, those who visited our institution within 24 hours from onset and those who visited our hospital more than 24 hours from onset. Furthermore, patients were also divided into two groups, *i.e.*, those who visited our hospital directly (Direct admission) and those who first visited a primary physician or hospitals without neurosurgical unit (Non-direct admission). The relationships between each factor and worsening of H & K were examined statistically. Subsequently the subjects in the present study were classified into three groups according to era in which they were affected by aSAH, *i.e.*, from 1986 to 1990 (A), from 1991 to 1995 (B), and from 1996 to 2000 (C). The correlations between admission delay and era were investigated.

RESULTS AND DISCUSSION

The median delay time was 1.7 days. Only 41% of patients visited our institution without delay. Admission delay, especially PD and DD, exhibited a significant correlation to worsening of H & K. Only 43.6% patients first visited our institution (Direct admission). Only 66.2% of the patients who visited a primary physician had been diagnosed correctly. In addition to non-direct admission, misdiagnosis or delayed diagnosis contributed significantly to worsening of H & K. Incidence of DD has declined in recent years, while that of PD has increased. Consequently, no change in total number of delays was found.

Maintaining good condition before admission is essential for good prognosis. So there had been many warning reports that admission delay results in worsening of prognosis. The results of previous studies cannot be compared as easily as those of the present study because the criteria of delay were varied. In the present study, we regarded a delay of more than 2 hours as admission delay because of the geographical situation of our hospital. However, if a delay of three or more days is considered admission delay, 15.8% of the cases in the present study were delayed. This result suggests that the rate of admission delay in our region is less than those described in previous reports. In addition, if a delay of more than 24 hours is considered delayed

admission, 24% of cases experienced delays, very similar to previous reports. On the other hand, the incidence of doctor's misdiagnosis or delayed diagnosis was previously reported in the 20.6% to 37% range. In the present study, DD occurred in 33.8%. It was also very similar to previous reports. These results suggest that insufficient attention is being paid to aSAH and there is a lack of countermeasure to aSAH in many countries or regions.

CONCLUSION

Despite advances in neurosurgical management, aSAH still has high mortality and morbidity. The present study indicates that there is much room for improvement of the prognosis of aSAH by early admission even today. Prevention of PD, DD, and non-direct admission is key to improving prognosis for aSAH.