

Vegetative State Patients in Japan

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Summary

It is now possible for the vegetative state patients after brain damage to survive for a long period, due to the progress of modern medical science. Their long survival, however, causes various social problems. For instance, they are increasingly occupying the beds for emergency cases and many of their families have been led to financial and household difficulties.

We intended to make those problems clear by collecting statistics of these patients in the main neurosurgical clinics in Japan. Results of our three years' follow-up of these patients, including economical aids in some prefectures and medical ethics surrounding these cases are reported in this paper.

Key words:

vegetative state patients, euthanasia

Introduction

The criteria of vegetative state patients:

- (1) Being unable to move by oneself
- (2) Being unable to eat by oneself
- (3) Being in the state of incontinence
- (4) Eyes can follow the objects but cannot recognize them.
- (5) Being able to react to simple demands such as "clench the hand," "open the mouth," but they cannot make more communication.
- (6) Having the ability of phonation, they cannot utter meaningful words.

The cases fulfilling these six criteria for more than three months and showing no improvement in spite of every possible medical effort are defined as "vegetative state patients."

I. Vegetative State Patients in Japan

Based on the above-mentioned definition, questionnaires to investigate the condition of vegetative state patients were sent to neurosurgical clinics at the end of 1972. Replies were sent back from 141 clinics (reply percentage was 90).

This helped us to constitute various statistics concerning vegetative state patients (VSP). Since then, questionnaires have been sent to make follow-up studies of the previous patients and a list of newly registered patients.

A. The First Survey—December 1972

The number of the VSP totaled 646 at that time according to the replies from 141 clinics. The number of cases and the diseases which directly or indirectly caused VSP were: 312 attributed to head injury, 41 to cervical spinal cord injury, 166 to cerebrovascular disease, 86 to brain tumor, 5 to poisoning, and 36 to miscellaneous diseases (Table 2).

We have previously reported³⁾ our study on the head injury patients, who account for almost half of the total number. The fact that 40 percent of the epidural hematoma in those cases were caused by delayed operation suggests the necessity of enlightening the general physicians and increasing the number of the emergency hospitals. Another major problem was that since most of the injured patients were men in the prime of life, 75 percent of their families were led to financial breakdown.

Table 1 Dynamic statistics of the VSP

Dec. 31, 1972	Dec. 31, 1973	Dec. 31, 1974	Dec. 31, 1975
newly registered 646 Survivors	391 Survivors	301 Survivors	217
	deceased 202	deceased 57	deceased 51
	unknown 4	unknown 17	unknown 22
	no reply 8	no reply 14	no reply 11
	excluded 41		
	newly registered 108 Survivors	50 Survivors	35
		deceased 50	deceased 13
		unknown 8	unknown 1
			no reply 1
		newly registered 135 Survivors	64
			deceased 59
			no reply 12
			newly registered 178
Total of Survivors 646	499	486	494

VSP: Vegetative state patients. Unknown: Patients could not be contacted.

No reply: Questionnaires were not returned. Excluded: Cases did not meet criteria of VSP.

Table 2 Causes of VSP reported in 1972

Head injury	312
Cerebrovascular disease	166
Brain tumor	86
Cervical spinal cord injury	41
Poisoning	5
Miscellaneous	36
Total	646

B. The Second Survey—December 1973

1. Follow-up Study of VSP reported in December 1972

Follow-up study was taken in December 1973 of the cases reported in 1972. Of the 646 cases reported in 1972, 391 were still alive and 202 had deceased. In eight cases no replies were received and four cases could not be contacted. In ad-

dition 41 cases were excluded because they were misjudged originally and did not meet the criteria of VSP.

2. Newly Registered Cases

In 141 clinics, 108 cases were newly registered as VSP. Forty cases were attributed to cerebrovascular disease, 32 to head injury, 26 to brain tumor and 10 to miscellaneous diseases. It should be noted that cerebrovascular disease

surpassed head injury this time as the number one contributor of VSP. Financial problems occurred in 81 percent of families, though it was still within one year since the patients were registered (Table 3).

3. Total Cases

The total number of patients in December 1973 (Table 1) was 499, consisting of 301 surviving patients from 1972 and 108 newly registered ones. The total shows a decrease of approximately 150 cases compared to the previous year. It is probably because the number of patients with head injuries became less owing to the decrease of traffic accidents.

C. The Third Survey—December 1974

1. Follow-up Study of VSP reported in 1972

Of the 391 patients who had survived up to December 1973 were followed up. The results showed 301 patients alive and 55 deceased. Seventeen cases could not be contacted and no replies were received for 14 cases.

2. Follow-up Study of VSP reported in 1973

Among the 108 VSP, 50 were still surviving, 50 had deceased and eight could not be contacted.

Table 3 VSP registered in 1973

Causes of VSP	
Cerebrovascular disease	40
Head injury	32
Brain tumor	26
Poisoning	0
Miscellaneous	10
Total	108
Financial conditions of their families	
Financially in debt	27 (25%)
Financially stressed	61 (56%)
Financially secure	19 (18%)
No reply	1 (1%)
Total	108 (100%)

Table 4 VSP registered in 1974

Causes of VSP	
Head injury	49
Cerebrovascular disease	46
Brain tumor	26
Poisoning	0
Miscellaneous	14
Total	135
Financial conditions of their families	
Financially in debt	16 (12%)
Financially stressed	81 (60%)
Financially secure	35 (26%)
No reply	3 (2%)
Total	135 (100%)

3. Newly Registered Cases (Table 4)

Number of the newly registered patients in 1974 was 135. Forty-nine cases were caused by head injury, 46 by cerebrovascular disease, 26 by brain tumor and 14 by miscellaneous diseases. Further, the data revealed that 72 percent of the patients' families were in a financial state of poverty.

4. Total Cases (Table 1)

Total number was 486, consisting of 301 survivors of 1972, 50 survivors of 1973 and 135 patients of 1974. The total number was almost the same as that of the previous year.

D. The Fourth Survey—December 1975

1. Follow-up Study of VSP reported in 1972 (Table 1)

Two hundred and seventeen were confirmed to be still alive out of 301 cases, 51 had deceased, 22 were impossible to follow and no replies for 11. The causes of the vegetative state in 217 survivors were: head injury in 150 cases, cerebrovascular disease in 45, brain tumor in 12, poisoning in one and miscellaneous diseases in nine cases. The percentage of survival in relation to each disease is as follows: out of 312 patients with head injury 150 survived (48.1%), out of

Table 5 The survival rate in reference to the causes of VSP

	Dec. 31, 1972	Dec. 31, 1975	Survival rate
Head injury	312	150	48.1 %
Cerebrovascular disease	166	45	27.1 %
Brain tumor	86	12	14.0 %
Poisoning	5	1	20.0 %
Cervical spinal cord injury	41	0	0 %
Miscellaneous	36	9	25.0 %
Total	646	217 average	33.6 %

166 patients with cerebrovascular disease 45 survived (27.1 %) and out of 86 patients with brain tumor 12 survived (14.0 %). This shows that the patients due to head injury were able to live longer than those with other diseases (Table 5).

2. Follow-up Study of VSP reported in 1973 (Table 1)

Of the 50 patients who were surviving in December 1974, 13 had deceased, one was impossible to follow, no reply for one, and 35 were still alive.

3. Follow-up Study of cases reported in 1974 (Table 1)

Among 135 survivors, 59 had deceased, 12 were no reply, and 64 were still alive.

Table 6 VSP registered in 1975

Causes of VSP	
Cerebrovascular disease	73
Head injury	46
Brain tumor	45
Poisoning	0
Miscellaneous	14
Total	178

Financial conditions of their families	
Financially in debt	18 (10 %)
Financially stressed	109 (60 %)
Financially secure	51 (30 %)
Total	178 (100 %)

4. Newly Registered Cases

Total number of new patients was 178. Seventy-three cases were caused by cerebrovascular disease, 46 by head injury, 45 by brain tumor and 14 by miscellaneous diseases. It is noticed that cerebrovascular disease was increasing. Seventy percent of the families were in the state of financial stress (Table 6).

5. Total Cases (Table 1)

Total number was 494, consisting of 216 survivors of 1972, 35 of 1973, 65 of 1974 and 178 newly registered. Total number was almost constant these three years.

II. Vegetative State Patients in Miyagi Prefecture

A. The First Survey—August 1973 (Table 7)

The total of the vegetative state patients was 53 according to the investigation done on August 1, 1973, when the relief measures were first offered by the Miyagi Prefectural Government. Twenty-four cases were caused by head injury, 22 by cerebrovascular disease, three by brain tumor, one by poisoning and three by miscellaneous diseases.

B. The Second Survey—August 1974

1. Follow-up study of VSP reported in 1973

Follow-up study was taken in August 1974 of the cases reported in 1973. Among the 53 cases, 22 had deceased and 24 were surviving. As seven moved to other prefectures in vegetative state, further information could not be obtained.

Table 7 Dynamic statistics in Miyagi Prefecture

Aug. 1, 1973		Aug. 1, 1974		Aug. 1, 1975	
newly registered	53	Survivors	24	Survivors	21
		deceased	22	deceased	1
		*discharged	7	discharged	2
		newly registered	15	Survivors	9
				deceased	5
				discharged	1
				newly registered	22
Total of Survivors	53		39		52

*discharged: Patients released from the hospital in the vegetative state to hospital in other areas. Further information could not be obtained.

2. Newly Registered Cases

Fourteen were newly registered as VSP. Eight cases were caused by cerebrovascular disease, four by head injury and three by brain tumor.

3. Total Cases

Total number was 39.

C. The Third Survey—August 1975

1. Follow-up Study of VSP reported in 1973

Among 24 cases, one had deceased, two were discharged and 21 were still alive.

2. Follow-up Study of VSP reported in 1974

Among 15 cases, five had deceased, one was discharged and nine were surviving.

3. Newly Registered Cases

Number of the new patients was 22. Thirteen cases were caused by cerebrovascular disease, five by head injury and four by brain tumor. This shows that the remarkable tendency of increase in cerebrovascular disease was also true in Miyagi Prefecture.

Discussion

Progress in modern medical science has been producing so-called "vegetative state patients,"¹⁾

who are now causing various problems. They have been gradually taking over the beds in hospital wards one by one. Their families are in a dilemma due to the tremendous financial burden.

At the Thirty-first Japan Neurosurgical Congress in 1972, the authors²⁾ proposed plans for the vegetative state patients. The proposal was accepted and statistic investigation was promoted under the sincere cooperation of neurosurgeons. According to the statistics, it became clear that the major cause of VSP of three years ago was different from that of 1974. Recently head injury is decreasing, while cerebrovascular disease is increasing.

The total number of the VSP in Japan is presumed to be approximately 2,000 today. Although this figure is small in comparison with the population, nobody can ignore the fact that patients do exist and that their families are in need of moral and financial assistance. The authors strongly believe that it is absolutely necessary to rescue these patients and families in distress.

On the other hand, there are some people who insist on euthanasia, on the ground that VSP have no value in our society and efforts to keep them alive longer is absolutely useless. The VSP, however, are living human beings. Even if electroencephalogram and other examinations reveal it impossible to awaken their consciousness,

how can the doctors and nurses, who have been taking great effort to keep them alive day and night, perform euthanasia? It is difficult and merciless to stop nutrition, even if euthanasia is legally permitted. Therefore, we believe that our society has the responsibility to take some kind of relief measure.

Presently such prefectural governments as Miyagi and Yamagata have begun to take considerable relief measures. Relief measures, though not sufficient, have been stated. Remember each of us has the same possibility of becoming the next vegetative state patient. We believe that nationwide relief measures would be very significant for the people, not only to impress the dignity of human life but also to recognize the importance of social welfare.

Acknowledgment

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References

- 1) Jenett, B. and Plum, F.: Persistent vegetative state after brain damage. *Lancet* I: 734-737, 1972
- 2) Kodama, N., Mori, T., Sato, T. and Suzuki, J.: Vegetative state patients. The 31st Japan Neurosurgical Congress (Okayama), 1972
- 3) Suzuki, J. and Kodama, N.: Statistics of vegetative state patients in Japan—especially the patients due to head injury—. *Japanese Medical Journal* 2621: 13-19, 1974

Erratum

We wish to correct the printing errors in the article by J. Suzuki, T. Iwabuchi, and S. Hori: "Cervical sympathectomy for cerebral vasospasm after aneurysm rupture." *Neurologia medico-chirurgica*, 15, Part I: 41-50, 1975 as follows: (1) The photos sequences for Fig. 3, 4 and 5 should be revised by replacing them with the photos sequences of Fig. 4, 5 and 3 respectively. (2) The photos labelled Upper Left and Upper Right in the "revised Fig. 4" should be interchanged. (3) In the legend for Fig. 5, the italicized headings should read: *Upper Left*, *Upper Right* and *Lower Left* instead of *Upper Left*, *Upper Right* and *Upper Left*.