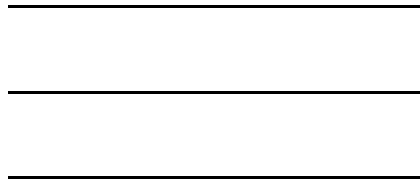


2002 6



가

4

,

.

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가

가

가

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,

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가

.

	-----	1
	-----	3
.	-----	5
1.	-----	5
2.	-----	5
.	-----	8
1.	-----	8
2.	-----	10
3.	, , -----	11
4.	-----	21
.	-----	27
.	-----	41
	-----	42
	-----	48

Table 1.	7
Table 2.	7
Table 3.	7
Table 4.	8
Table 5.	9
Table 6.	9
Table 7.	12
Table 8.	19
Table 9.	20
Table 10.	21
Table 11.	22
Table 12.	22
Table 13.	24
Table 14.	26
Table 15.	26

10 - 44%

가 가 ,

1998 1 2000 12 3

179

Glasgow Coma Scale(GCS) eye response motor response (Glasgow Coma Eye Motor Scale, GCEMS)

가 , , Group 1 (10), Group 2 (8, 9), Group 3 (5 - 7), Group 4 (2 - 4) Glasgow Outcome Scale(GOS) 가 .

가

가 가

Group 1 79 (44.1%), Group 2가 35 (19.6%), Group 3 27 (15.1%), Group 4가 38 (21.2%) 55 (30.7%) 가 ,

45 (25.1%),

23 (12.8%), 24 (13.4%),

20 (11.2%), 5 (2.8%),

2 (1.1%) . 115 (64.2%),

31 (17.3%), 33 (18.4) .

Group 1 (58 , 73.4%) , Group 2 3

13 (37.1%), 16 (59.3%) . Group 4

24 (63.2%) 14 1

. GOS 5 77 (43.0%), 4가

21 (11.7%), 3 14 (7.8%), 2 11 (6.1%), 1() 56

(31.3%) , GCEMS가 (Group

1;7.6%, 2;22.9%, 3;44.4%, 4;78.9%).

,

,

,

. GCEMS가 10 ,

GCEMS 5~9 가

, 가 , GCEMS 2~4

가 ,

: , , ,

< >

10 - 44%

가 가 ,

가

12~32%

가 (1)(2)(3)

2000

13 4 ,

9 .

24.8% . 10

47.5 , 50 60 가

. 60 64 10 1907

가 . 13% 10%

, 30% 23%, 44%

28.8%,

5.3%

, 2.0%, 5.6%

(4)

가

가

1.

1998 2000 3 , , ,
(subcortical intra- cerebral
hemorrhage) (lobar intracerebral hemorrhage)
199 . 20 .
, .
가 . 가 가
.
가 28 .
가
51 .

2.

, , , , , , ,
, , , , , .
Glasgow Coma Scale(GCS) eye response motor
response (GCEMS) 가 , , Group 1 (10
), Group 2 (8~9), Group 3 (5~7), Group 4 (2~4)
(Table 1, 2) . Glasgow outcome scale(GOS) 가

(Table 3).

가

가

가

가

가

1cm

6

(x

x

$\times\pi/6$) ⁽⁵⁾.

SAS

, P<0.05

Table 1. Classification of Group According to GCEMS

Group	Scale
1	10
2	8~9
3	5~7
4	2~4

Table 2. Glasgow Coma Eye Motor Scale (GCEMS)

Eyes	Open	Spontaneous	4
		To verbal command	3
		To pain	2
		No response	1
Best motor response	To verbal command To painful stimulus	Obeys	6
		Localizes pain	5
		Flexion -withdrawal	4
		Decortication	3
		Decerebration	2
		No response	1

Table 3. Glasgow Outcome Scale

Scale	Classification
5	Good recovery
4	Moderate disability
3	Severe disability
2	Vegetative state
1	Death

1.

179
 93 (53.3) . 60 77 43.0%

(Table 4). 가 1 - 87 (53) ,
 2 - 93 (53.6) . 60
 가 41 가 36 .
 (P<0.001).

Table 4. Age and Sex Distribution (n=179)

Age	Male	Female	Total
1~19	4	5	9
20~39	14	17	31
40~59	42	20	62
>= 60	41	36	77
Total	101	78	179

가 (P<0.01). 60
 , 가 ,
 . 60 ,
 가 (Table 5).
 (P=0.1208), (14 ,
 73.7%) (5 , 26.3%) (Table 6.).

Table 5. Cause of Hemorrhage and Age Distribution (n=179)

Cause	Age (year)				Total
	1 ~ 19	20 ~ 39	40 ~ 59	>= 60	
Intracranial cause					
Hypertension	2	7	22	24	55
Metastasis	1	3	13	3	20
Infarct			4	16	20
vascular malformation	1	9	7	2	19
moyamoya disease		2	3		5
primary brain tumor			1	2	3
sinus thrombosis		1	1		2
Vasculitis		1		1	2
Systemic cause					
Thrombocytopenia	3	5	4	3	15
anticoagulant treatment		2	6	13	21
thrombolytics therapy				9	9
Endocarditis	2	1		2	5
chronic renal disease			1	2	3
Total	9	31	62	77	179

Table 6. Cause of Hemorrhage and Sex Distribution (n=179)

Cause	Sex		Total
	Male	Female	
Intracranial cause			
Hypertension	30	25	55
Metastasis	11	9	20
Infarct	12	8	20
vascular malformation	14	5	19
moyamoya disease	3	2	5
primary brain tumor	2	1	3
sinus thrombosis	1	1	2
Vasculitis		2	2
Systemic cause			
Thrombocytopenia	7	8	15
anticoagulant treatment	12	9	21
thrombolytics therapy	5	4	9
Endocarditis	2	3	5
chronic renal disease	2	1	3
Total	101	78	179

2.

75 가
 . 가 45 , 가 30 ,
 100~ 260 mmHg (: 163.6 mmHg) , 50~161
 mmHg (: 93.2 mmHg) . 150 mmHg
 50 , 100 mmHg 33 .
 90 - 210 mmHg
 (136.52 mmHg), 57 - 150 mmHg (81.9 mmHg)
 . 150 mmHg 25 ,
 100 mmHg 14 .
 , 가
 78 (43.6%) 가 , 46 (25.7%), 25 (14%),
 13 (7.3%), 10 (5.6%), 4 (2.2%),
 2 (1.1%), 1 (0.6%) .
 Glasgow Coma Scale eye score motor score
 (GCEMS) . 10 7.69 .
 Group 1 79 (44.13%), Group 2 35 (19.6%), Group 3 27
 (15.1%), Group 4 38 (21.2%) (Table 7).
 8 , 17
 가 2 가 . 18
 , (homonymous hemianopsia) 12

, 6 . 13 가 , 2
 , 3 .
 13 8 (61.5%),
 3 (23%), 1 (7.7%), 1 (7.7%)
 가 .

3. , ,

(55 , 30.7%),
 (20 , 11.2%), (20 , 11.2%), (19 , 10.6%)
 , (21 , 11.7%),
 (15 , 8.4%), (9 5.0%) (Table 7).
 179 51 , 가
 15 , 4 , 3 , 2 ,
 2 , 2 29
 .

15 13 , 2 가 ,
 9~64 (38) . 가 ,
 95~160 mmHg (129.7 mmHg),
 60~120 mmHg (79 mmHg) 가 . ,
 4 , 5 , 2 , 2 , 1 , 1
 . GCEMS 3 10 8.53 .

Table 7. Cause of Hemorrhage and Consciousness on Admission (n=179)

Cause	10	GCEM Scale			Total
		9~8	7~5	4~2	
Intracranial cause					
Hypertension	26	10	5	14	55
Metastasis	5	5	6	4	20
Infarct	9	6	4	1	20
vascular malformation	11	5	2	1	19
moyamoya disease	5				5
primary brain tumor	2	1			3
sinus thrombosis	2				2
Vasculitis		1	1		2
Systemic cause					
Thrombocytopenia	5	2	3	5	15
anticoagulant treatment	10	3	3	5	21
thrombolytics therapy	2	1	3	3	9
Endocarditis	1	1		3	5
chronic renal disease	1			2	3
Total	79	35	27	38	179

*GCEM Scale = Score of eye response plus motor response in Glasgow coma scale

7 , 3 , 3 , 1
 , 1 .
 5 가 , 가 .
 5 가 3 ,
 2 . 가 8 , 4 ,
 1 , 2 . 10 가
 , 4 가 가 . 1
 .
 3 , 1 25 - 69 (37.8)

. 1 , 2 , 2
 . 3 , 1 .
 가 1 .
 110 - 180 mmHg (137.7 mmHg), 62 - 120
 mmHg (85.5 mmHg) . 가 69
 , (Coumadin)
 . 180mmHg, 120mmHg
 . Prothrombin time INR
 1.48 . , 3
 , 1 가
 .
 3 , 2 , 가
 , 40 , 44 , 53 . 2 가 .
 가 , 29, 30 ,
 . 3 , 1
 , 1 .
 , 1
 , . 5
 100 - 170mmHg (134.6mmHg),
 58 - 100mmHg (80.4mmHg) . 2 , 1 ,
 2 . 1

가 1

2

. 1 56

160mmHg, 90mmHg
(left lateral venous sinus)

26

2 1 65

200mmHg, 100mmHg

. 1 64

11 , 9 ,

6~72 (48.1) . , 6 (30%), 4
(20%), 1 , 1 , 1 , 1 ,
1 , 1 . (Ewing's sarcoma) 1 ,
(neuroblastoma) 1 , (maxillary squamous carcinoma) 1
, 1 가 . 4 가 ,

3 , 3 , , , 2 , 4 .
20 2 , 4
. 1 , 1 .
20 7 가 , 3 , 2 ,
1 1 .
7 GCEMS가 6 ,
가 24,000 /ml - 149,000 /ml (69,000/ml)
, 가
. 13 .
2 , 3 12 - 67 (47.2) .
, (Glioblastoma),
(anaplastic astrocytoma), (meningioma),
(mixed germ cell tumor), (oligodendroglioma) 1
. 가 3 (2.4%) ,
.
, .
가 4,000 /ml .
20 12 , 8 ,
42 - 93 (66.6) . 8 , 6 , 4
, 1 , 1 . GCEMS 3 - 10 (8.5)

. 13 , 5 ,
1 , 1 . 6 , 6 , 3 ,
1 , 2 , 1 , 1 .
가 10 , 6 .

100 - 170mmHg (139.3mmHg),
60 - 100mmHg (80.1mmHg) . 7

tissue plasminogen activator(tPA) 3 , urokinase(UK) 2 , heparine 2

. 4 , 1 , 1

가 , 1 .

1

. 1

. 1

1

40,000/ml

1

가 73,000/ml

15

4 ,

(idiopathic thrombocytopenic purpura:I TP) 3 , 3 , 1 ,

(myelodysplastic syndrome) 1 , (aplastic anemia) 1
, 2 가 . 5 , 10 , 12 - 85 (41.2) . GCEMS 2~10 (6.7) . 8 , 3 , 2 , 1 , 1 . 2,000 /ml - 89,000 /ml (33,000 /ml) . 15 10 , 4 , 1 . (Wafarin, Coumadin) (acetylsalicylic acid, Astrix) 21 6 가 , 2 , 2 , 1 , 1 가 . Prothrombin time(INR) 0.9 - 3.53 (1.82) . 5 , 2 , 1 , 1 가 . 1 , (mycotic aneurysm) 1 , 2 가 . 1 가 . 5 가 , 2 가 , 1 가 . 2

, 31,000 /ml, 22,000 /ml . 1

가

2 1 , 1 67

3

가 , 230mmHg, 200mmHg,
190mmHg , 가 155,000 /ml, 115,000 /ml,
86,000 /ml .

BUN/Cr 51/8.1 55/9.2mg/ml ,

3

. 1 30 38

55 .

2 - 86 (58) , 가 39

100 - 260mmHg (162.3mmHg),

50 - 161mmHg (94.4mmHg) . 가

(66 , 36.9%), (51 , 28.5%)

가 (Table 8.).

Table 8. Location of Hemorrhage and Consciousness on Admission (n=179)

Location	GCEM Scale				Total
	10	9~8	7~5	4~2	
Frontal	23	15	9	19	66
Temporal	22	7	11	11	51
Parietal	17	7	4	4	32
Occipital	17	6	3	4	30
Total	79	35	27	38	179

*GCEM Scale = Score of eye response plus motor response in Glasgow coma scale

124 가 , 2.5~214.5cc(45.7cc) Table 9 .

20 cc 가 39 (31.5%), 21~40 cc 32 (25.8%), 41 - 60 cc 가 22 (17.7%), 60 cc 가 36 (29.0%) . , ,

(P=0.0004)(Table 9.).

Table 9. Cause and Volume of Hemorrhage (n=124)

Cause	Volume (cc)				Total
	1~20	21~40	41~60	>60	
Intracranial cause					
Hypertension	14	13	4	13	44
Metastasis	4	3	5	4	16
Infarct	3	5	1	2	11

vascular malformation	6	2	3	2	13
moyamoya disease	2		1	1	4
Primary brain tumor	1				1
sinus thrombosis	1				1
Vasculitis	1				1
Systemic cause					
Thrombocytopenia	1		4	4	9
anticoagulant treatment	2	4	2	6	14
thrombolytics therapy	2	2	1		5
Endocarditis		1		1	2
Chronic renal disease			1	2	3
Total	39	32	22	36	124

(Table 10). 20cc

GCEMS가 10 가 24 (61.5%) GCEMS가 2~4
 2 (5.1%) , 60cc GCEMS가 10 가 7 (19.4%)
 GCEMS가 2~4 15 (44.4%) .

Table 10. Volume of Hemorrhage and Consciousness on admission (n=124)

Volume (cc)	GCEM Scale				Total
	10	9~8	7~5	4~2	
1~20	24	11	2	2	39
21~40	14	6	2	7	29
41~60	9	3	7	3	22
>60	7	3	9	15	34
Total	54	23	20	27	124

* GCEM Scale = Score of eye response plus motor response in Glasgow coma scale

4.

Table 11. 12

가 가 가

(P=0.2396). 가

(P=0.0203).

가

group 1

6 , group 2가 5 , group 3 5 , group 4가 4

가

가 GOS 1 9 , GOS 5가

4 , GOS 4가 1 2

가 가 ,

Table 11. Cause of Hemorrhage and Treatment Modality (n=179)

Cause	Treatment Modality			Total
	Conservative care	Catheter insertion	Open craniotomy	
Intracranial cause				
Hypertension	32	14	9	55
Metastasis	14	4	2	20
Infarct	17	2	1	20
vascular malformation	5	2	12	19
moyamoya disease	4	1		5
primary brain tumor	1		2	3
sinus thrombosis	2			2

Vasculitis	1		1	2
Systemic cause				
Thrombocytopenia	13	1	1	15
anticoagulant treatment	11	7	3	21
thrombolytics therapy	7	2		9
Endocarditis	2	2	1	5
chronic renal disease	2		1	3
Total	115	33	31	179

Table 12. Cause of Hemorrhage and Clinical Outcome (n=179)

Cause	Glasgow Outcome Scale					Total
	5	4	3	2	1	
Intracranial cause						
hypertension	25	9	3	6	12	55
metastasis	5	2			13	20
infarct	9	1	2	2	6	20
vascular malformation	13	4	1		1	19
moyamoya disease	4	1				5
primary brain tumor	3					3
sinus thrombosis	2					2
vasculitis		1			1	2
Systemic cause						
thrombocytopenia	4				11	15
anticoagulant treatment	10	2	4	2	3	21
thrombolytics therapy	1		2	1	5	9
endocarditis	1		2		2	5
chronic renal disease		1			2	3
Total	77	21	14	11	56	179

2 2

가

20 15 가 GCEMS 8

8 GOS 5 . 20

3 . GCEMS 8 40cc

가

, 40cc 2

1 50cc

1

GCEMS 10

56cc

가

GSEMS 7

5

, 3

1

, 1

5

가

가

9

가

15 11

가 가

가

가

(P=0.0076),

가 ,

가 (P<0.0001)(Table 13.).

Table 13. Volume of Hemorrhage and Clinical Outcome (n=124)

Volume(cc)	Glasgow Outcome Scale					Total
	5	4	3	2	1	
1 -20	26	4	0	2	7	39
21 -40	14	3	4	2	6	29
41 -60	9	3	2	1	7	22
>60	6	5	3	5	15	34
Total	55	15	9	10	35	124

Group Table 14, 15 , 가
 (p<0.01). 가 가 (115 ,
 64.2%), 31 (17.3%), 33
 (18.4%) (Table 14).

(p<0.01). Group 1, 2
 , Group 1 Group 2
 . Group 3 (11 40.7%)
 가 (8 , 29.6% ; 8 , 29.6%).
 가 Group 4 (24 , 63.2%),
 (1 , 2.6%) (13 , 34.2%)

가 .

가 GOS 5(Good Recovery)

가 (Group 1, 58 , 73.4% ; Group 2, 11 , 31.4% ; Group 3, 8 , 29.6% ; Group 4 , 0%), 가 (Group 1, 6 , 7.6% ; Group 2, 8 , 22.9% ; Group 3, 12 , 44.4% ; Group 4, 30 , 78.9%). Group 1 가

. Group 4

가 .

14%

가 .

가

가

가 .

가

가

, Group 1

84.8%(GOS 4+5)

가

. Group 1

6

2 ,

3 ,

1

가

,

, 가

가

, 가

가

가

가

가

, Group 1 2

Table 14. Consciousness on Admission and Treatment Modality (n=179)

GCEM Scale	Treatment Modality			Total
	Conservative care	Catheter insertion	Open craniotomy	
10	58	6	15	79
8~9	22	6	7	35
5~7	11	8	8	27
2~4	24	13	1	38
Total	115	33	31	179

*GCEM Scale = Score of eye response plus motor response in Glasgow coma scale

Table 15. Consciousness on Admission and Clinical Outcome (n=179)

GCEM Scale	Glasgow Outcome Scale					Total
	5	4	3	2	1	
10	58	9	5	1	6	79
8~9	11	10	3	3	8	35
5~7	8	1	4	2	12	27
2~4		1	2	5	30	38
Total	77	21	14	11	56	179

*GCEM Scale = Score of eye response plus motor response in Glasgow coma scale

(subcortical)

(lobar)

(2)

, 10 - 44%

(1)(2)(3)(6)(7)

가

12 - 32%

가

(1)(2)(3)

2000

13 4

9

24.8%

10

47.5

50

60

가

.60

64

10

1907

가

13%

10%

30%

23%,

44%

28.8%,

5.3%

2.0%, 5.6%

(4)

18.2%, 7.6%, 11% , 3.6%, 3.8%, 8.8%

(1)(3)(8) ,

12.7% 가 amyloid angiopathy . Coumadin

7.6%, 11% (1)(3) .

(8.4%) (2.2%)

10.6%가 , (Coumadin) 6.7% ,

5.1% .

15.6%, 3.1% (2) .

가 가 .

51 - 71%, 73%, 43%, 68.6%

가 (9)(10)(11)(12) . 2 - 21% (10) .

가 .

가 ,

가

가 , 가

가

.

. , 가

, 1 - 2

가 (10)(11) .

가 (13)

가 .

가 가 11% 15%

가 , 가

(10)(11)(12)(14)(15)

9%

3 3

가 (15)

5 가 1

가

0.4% - 0.7% (16)(17)

(66%) , (77%) ,

(80%) . , 45.9%

(16)

가 가

(16)

가

(17)

7% , 19%

(vegetation)가

가 , - Staphylococcus aureus -

가

(18)

1

. Amyloid

angiopathy

lobar

hemorrhage

. amyloid angiopathy

. Amyloid angiopathy

lobar ,

amyloid angiopathy

(19). Amyloidosis

amyloid가

. Amyloid beta - pleated sheet 가

. Congo red

가 , congophilic angiopathy with plaque - forming

angiopathy and dyschoric angiopathy, senile plaque with a central amyloid core,

the amyloid deposits of the spongiform encephalopathies가 . Congophilic

amyloid angiopathy

, 가 가

. 60 20%

90 가 58%

가 .

. ,

.

.

가 .

가 ,

.

. ,

, 가

(20) . ,

가 , 가 가

, 가

.

59%가 (7) .

가 55

가 , 가 65

가 , 가 .

137 55 (40%)
 . 30 (22%)가 , 5
 (4%), 1 (1%), 2 (1.5%), 2 (1.5%),
 2 (1.5%), 1 (1%), 2
 (1.5%), 6 (4%), 2 (1.5%) (21).

45

가 (6).

, 가 23 (17%) .

79 가 5

, 3 , 2 , 2

. , 65 22 3

4 . 12

(angiographically occult cerebral

vascular malformation, AOVМ) ,

가 (21).

50 29

, 6 (20.7%), 3 (10.3%),

(37.9%), 6 (20.7%), 2 (6.9%)

. , 58.6% 가 (22) .

가

65

1)

, 2)

, 3)

, 4)

가 ,

(21)(37) .

(23) .

75%가

80 - 90%가

80%가

가

가 ,

가

AOVM(angio graphically occult vascular malformation;

)

(21) .

20

, 40%,

30%,

15%,

5% .

가

40% , 60% ,

25% , 5%

(24)

74 , 2 20,000/ml, 36,000/ml

62

74

, 62

2000U 3000U

(25)

가 5 .

, 1 . 3

, 2 GOS 5 가

. 가 , 가

,

. 3 1

가

가

가

.

가 .

80 . 가

56 (68%) , 20 (36%)

. 20

6 (30%) ,

가 65 .

16

12

. 65 ,

,

(26) .

, 18

. 30

. 2

,

가

가

(27)

가 (28),

27 - 53%가

가

(29)

(main trunk)

가

2

, 1 51

20

가

가

(leptomeningeal anastomosis)

, 1 54 27

가

2

가

(30)

24

(the cord sign, the hyperdense sign,
the empty delta sign) 가 the empty delta sign 30%

가

가

가

가

(31)

, 489

68

, 18

6

, 4 , 4 , 1 , 1 ,

1 1 .

68

50 15 ,

2가 가 . 1) 150mmHg,

100mmHg, 2) , 3) , 4)

, 5) . , 13

10

, 3 .
 , 가
 가
 78% . 24
 가 , 가 ,
 1 .
 (lenticulostriate artery) (arteriolar
 microaneurysm) (subcortical vessel) ,
 30%가
 (7)(32)(33) 55 가 ,
 가 ,
 가
 0.7% - 14% .
 가 15%
 70 - 80% (34) 1861
 0.9 - 11%
 1.3 - 9.6% .

66.7%, 15.5% .
7.8%,
7%, 4.5%, 2.9%, 1.3%
(35) .

가

220

3 (1.4%) .

가

가

가

가

가

가

(34) .

23

가

20

7

가 . 가 가
가 가 , 13
가 가 가
가 가
가 가 .
1 , 2
.
가 , . ,

(36)

·

, ,
, , ,

. GCEMS가 10

가

, GCEMS 5~9

, 가

, GCEMS 2~4

가

,

·

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= Abstract =

Management strategy of spontaneous subcortical intracerebral hemorrhage

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Object: It is reported that spontaneous subcortical intracerebral hemorrhage consists about 10 to 44% of spontaneous intracerebral hemorrhage. Recently, spontaneous subcortical intracerebral hemorrhage due to the complication of the systemic disease has been increasing, and the selection of management strategy according to the cause of hemorrhage closely affected the management outcome. This study was designed to analyze the cause of spontaneous subcortical intracerebral hemorrhage and the outcome in order to establish the appropriate management strategy

Subject: One hundred and seventy - nine cases of spontaneous subcortical intracerebral hemorrhage managed at Yonsei University Hospital from January 1998 to December 2000 were included in this study. Patients who suffered from subcortical intracerebral hemorrhage due to the ruptured intracranial aneurysm were exempted. The patient's sex, age, mental state on admission, neurologic

condition, past history, systemic disease related to hemorrhage, location of hemorrhage, the diagnosis of intracranial or systemic disease, treatment methods, and clinical outcome were analyzed. Consciousness on admission was evaluated and scored based on Glasgow Coma Eye Motor Scale (GCEMS), which was the sum of eye response score and motor response score of the Glasgow Coma Scale. Patients were categorized into 4 groups according to GCEMS: Group 1 (10 points), Group 2 (8, 9 points), Group 3 (5~7 points), and Group 4 (2~4 points). The clinical outcome of the patient was evaluated based on Glasgow outcome scale (GOS). Differences in diagnostic procedure were present depending on the condition of the patients, thus the final diagnostic procedure was used to diagnose the reason behind bleeding. When accurate diagnosis was difficult to perform, the reasons with the highest likelihood were chosen.

Results: The patients corresponding to each group were as follow: 79(44.1%) in Group 1, 35(19.6%) in Group 2, 27(15.1%) in Group 3, and 38(21.2%) in Group 4. Fifty - five patients (30.7%) were hypertensive intracerebral hemorrhage, 45 patients (25.1%) had anticoagulant therapy and thrombocytopenia due to the systemic disease and bleeding diasthesis after anticancer drug therapy, 23 patients (12.8%) had brain tumor including of the metastatic tumor, 19 patients (10.6%) had arteriovenous malformation, 18 patients (10.1%) had postinfarct hemorrhages, 5 patients (2.8%) had infective

endocarditis, 2 patients (1.1%) had cerebral vasculitis. Conservative treatment was done in 115 patients (64.2%), open craniotomy in 31 patients (17.3%), and catheter insertion in 33 patients (18.4%). Group 1 mainly had conservative treatment (58 patients, 73.4%), Group 2 and 3 each had 12 patients (37.1%) and 16 patients (59.3%) underwent open craniotomy respectively. In Group 4, conservative treatment was done for 24 patients (63.2%), and open craniotomy was done for only one patients among 14 patients treated surgically. Overall clinical outcome was: 77 patients (43.0%) in GOS 5, 21 (11.7%) in GOS 4, 14 (7.8%) in GOS 3, 11 (6.1%) in GOS 2, and 56 patients (31.3%) died. Poor neurological state (low GCEMS) on admission was closely related to mortality (Group 1, 7.6%; Group 2, 22.8%; Group 3, 45.0%; Group 4, 78.9%).

Conclusion: The major causes of spontaneous subcortical intracerebral hemorrhage were hypertension, metastatic brain tumor, vascular malformation, and the bleeding tendency due to the systemic disease, complication of the anticancer drug, anticoagulant, and thrombolytics therapy. Conservative treatment could be considered for the patients with GCEMS 10, removal of hematoma by open craniotomy or catheter insertion for the patients with GCEMS 5~9, and the catheter insertion or deferring the active treatment could be considered for the patients with GCEMS 2~4.

KEY WORDS : Intracerebral hemorrhage, Subcortical, Spontaneous