

두개강내 동맥류 파열로 인한 Hunt-Hess Grade IV 환자에서의 응급수술의 결과

오준규 · 강희인 · 문병관 · 이승진 · 김주승

= Abstract =

The Outcome of Urgent Surgery for Hunt-Hess Grade Patients with Ruptured Intracranial Aneurysm

Jun Gyu Oh, M.D., Hee In Kang, M.D., Byung Gwan Moon, M.D.,
Seung Jin Lee, M.D., Joo Seung Kim, M.D.

Department of Neurosurgery, Nowon Eulji General Hospital, Eul Ji College of Medicine, Seoul, Korea

Objective : About 40% of patients who admit to the hospital after subarachnoid hemorrhage are poor clinical grade (Hunt - Hess grade IV, V). The majority of these patients have been excluded from early, aggressive treatment. The current study was undertaken to evaluate the outcome of urgent surgery for Hunt - Hess grade IV aneurysmal subarachnoid hemorrhage.

Materials and Methods : We reviewed hospital records and radiographic studies of 36 patients who were Hunt - Hess grade IV among 201 cases with ruptured intracranial aneurysm admitted between Sep. 1995 and Dec. 2000. Operated patients were treated with urgent angiography and surgery within 24 hours of presentation, except six patients, and medical records of these patients were reviewed for the clinical course and Glasgow outcome scale (GOS).

Results : Overall management results of the 36 patients were good recovery in 13 (36.1%), moderate disability in 12 (33.3%), severe disability in 1 (2.8%), vegetative state in 1 (2.8%) and 9 (25.0%) of surgically treated patients had died.

Conclusion : Although with limited number of patients, we conclude that urgent surgery for Hunt - Hess grade IV patients results in a better neurologic outcome and urgent surgery combined with aggressive postoperative management can minimize mortality.

KEY WORDS : Hunt - Hess grade IV · Subarachnoid hemorrhage · Urgent surgery · Mortality.

서 론

8)24)

1/3

20)29)

가

12)21)

, Hunt - Hess grade

8)26)

8)12)

(Hunt - Hess grade IV, V)

Hunt - Hess grade

가

대상 및 방법

1. 연구대상 및 방법

1995 9 2000 12
 가 , 3
 201
 Hunt - Hess grade 24
 36 , 3
 6
 가
 3 6
 Glasgow outcome scale(GOS) good recovery (good outcome) severe disability vegetative state (poor outcome)
 Chi - Square Test, Fisher's Exact Test, Independent Samples t - test
 p<0.05

2. 처치

3
 (three - dimensional computed tomographic angiography)
 24
 Paine's point
 (lamina terminalis)

결과

Hunt - Hess grade 36
 6

1. Glasgow outcome scale

Hunt - Hess grade 36 good recovery 가 13 (36.1%) , moderate disability 12 (33.3%), severe disability 1 (2.8%), vegetative state 1 (2.8%) , 9 (25.0%)
 25 (69.4%)
 11 (30.6%) (Table 1).

2. 성별 및 연령분포

가 7 (19.4%), 가 29 (80.6%) 가
 , 26 76 , 50
 60 11 (30.6%), 15 (41.7%) 가
 60 60

가 (Table 2).

3. 과거력의 유무

가 14 (38.9%), 가
 6 (16.7%)
 가 (Table 3).

Table 1. Outcome(GOS) of 36 Hunt-Hess grade patients

GOS	Hunt-Hess grade
Good recovery	13(36.1%)
Moderate disability	12(33.3%)
Severe disability	1(2.8%)
Vegetative state	1(2.8%)
Death	9(25.0%)
Total	36(100%)

Table 2. Outcome according to age

Age	Outcome		Total
	Good outcome	Poor outcome	
<60	13	3	16
>60	12	8	20

Table 3. Outcome according to hypertension and DM

	Outcome		Total
	Good outcome	Poor outcome	
Hypertention			
(+)	11	5	3
(-)	14	20	8
DM			
(+)	1	14	6
(-)	10	22	30

Table 4. Outcome according to location and size

	Outcome		Total
	Good outcome	Poor outcome	
Location			
ICA	8	2	10
ACA	9	5	14
MCA	5	3	8
Vertebrobasilar	2	1	3
Multiple	1	-	1
Size			
<10mm	19	9	28
10 - 25mm	6	2	8

4. 뇌동맥류의 위치와 크기

ICA 10 (27.8%), ACA 14 (38.9%), MCA 8 (22.2%), Vertebrobasilar 1 (2.8%), Multiple 1 (2.8%), Size 10mm 가 28 (77.8%), 10~25mm가 8 (22.2%) 25mm 가

(Table 4).

5. 혈관의 위치에 따른 결과

ICA 14 (38.9%), ACA 22 (58.3%), MCA 5 (13.9%), Vertebrobasilar 9 (25.0%), Multiple 1 (2.8%), Size 8 (22.2%) 10mm 가 28 (77.8%), 10~25mm가 8 (22.2%) 25mm 가

(Table 5).

6. 응급 수술에 따른 결과

<24 hours 30 (76.7%), >24 hours 23 (76.7%)

Table 5. Outcome according to clot location

	Outcome		Total
	Good outcome	Poor outcome	
Clot location			
SAH only	9	5	14
ICH	2	3	5
IVH	6	3	9
ICH+IVH	8	-	8

Table 6. Outcome according to timing of operation

	Outcome		Total
	Good outcome	Poor outcome	
<24 hours	23	7	30
>24 hours	2	4	6

Table 7. Outcome according to urgent surgery within 24 hours

	Outcome		Total
	Good outcome	Poor outcome	
<12 hours	14	5	19
12 - 24 hours	9	2	11

ICA 6 (33.3%), ACA 2 (33.3%), MCA 24 (73.7%), Vertebrobasilar 12 (33.3%), Multiple 19 (58.3%), Size 14 (73.7%), 10mm 가 11 (81.8%), 10~25mm가 9 (81.8%) 가 (Table 7).

7. 신경학적 합병증

ICH 18 (58.3%), IVH 4 (12.5%), ICH+IVH 22 (60.8%)

8. 사망원인

ICH 9 (22.2%), IVH 2 (5.0%), ICH+IVH 11 (27.2%) 가

(p<0.05),

고 찰

Hunt - Hess grade ,

Hunt -Hess Grade

Table 8. Outcome in Hunt-Hess grade IV subarachnoid hemorrhage patients

Hunt-Hess grade Authors & year	No. of patients	Management	Outcome(%)		
			Good	Poor	Dead
Hunt & Hess, 1968	35	Delayed surgery until grade	-	-	71.0
Freckmann, et al., 1987	14	Delayed surgery unless ICH present	7.1	28.6	64.3
Ohno, et al., 1988	23	Delayed surgery unless ICH present	21.7	17.4	60.9
Inagawa, et al., 1988	84	Selective early surgery	17.8	22.6	59.5
Petruk, et al., 1988	82	Selective early surgery	30.5	28.0	41.5
Bailes, et al., 1990	22	EVD, selective aggressive	54.6	18.5	26.9
Nowak, et al., 1994	40	EVD, selective aggressive	45.0	37.5	17.5
Le Roux, et al., 1996	76	Aggressive management	53.9	21.0	25.0

Good : Glasgow Outcome Score of good and moderately disabled, Poor : Glasgow Outcome Score of severely disabled and vegetative, selective aggressive : emergency evacuation of ICH, early surgery in patients demonstrating clinical improvement or controllable ICP after ventricular drainage, not all patients are intubated and ventilated, aggressive management : surgical obliteration of the aneurysm was achieved as soon as possible in the 24 hours following admission, aggressive treatment and prevention of intracranial hypertension and vasospasm

가 13) ,
 가
 Winn 29) Hunt - Hess grade 72 3 - H(Hypertention, Hyper-
 35% , Steudel volemia, Hyperdilution)
 23) 116 Hunt - Hess grade 57 17)22) ,
 23% 56%
 Duke 4) Hunt - Hess grade 가
 24 가 , 가 가 14) ,
 33% 가
 Hunt - Hess grade 가
 가 11)28) ,
 (Table 8). 가 10% ,
 가 2)9)19)21) Rosenorn 19) 2 ,
 가 21.6% 11.6% 25) ,
 Hillman 6) 24 25) 3)
 79.2% , Le Roux 12) ,
 72 가 ,
 21) Hunt - Hess grade 가,
 (vital brain destruction)
 , 3 16) ,
 10) ,

1)18)23)

12)

5)15)27)

, Wheelock 28)
75%

29%

11)

25
Infusion CT (com-
puted tomography) scanning

12 가

3

90%

7)30), 가

결 결

Hunt - Hess grade 36
, 69.4% 25.0%

24

가

Hunt - Hess grade

가

가

- : 2001 5 19
- : 2001 7 12
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139 - 711 1 280 - 1
: 02) 970 - 8268, : 02) 975 - 7811
E - mail : khi2303@eulji.or.kr

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Hunt-Hess Grade

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