

뇌실질내출혈을 동반한 중대뇌동맥류 파열 환자의 예후 인자*

이 원 창 · 최 창 화

= Abstract =

Prognostic Factors of Ruptured Middle Cerebral Artery Aneurysm with Intracerebral Hematoma

Won Chang Lee, M.D., Chang Hwa Choi, M.D.

Department of Neurosurgery, School of Medicine, Pusan National University, Pusan, Korea

Objective : The purpose of this study was to investigate the prognostic factors in patients who suffered an intracerebral hemorrhage(ICH) due to a ruptured middle cerebral artery(MCA) aneurysm.

Methods : Among 148 case of ruptured MCA aneurysm, ruptured MCA aneurysm with ICH was compared with ruptured MCA aneurysm alone. According to factors, the prognosis in these two groups was analyzed. Prognosis was evaluated postoperatively by applying Glasgow Outcome Scale(GOS) at discharge. Prognostic factors were evaluated with Chi square test, Mann - Whitney test and ANOVA test with differences being considered significant for value less than 0.05.

Results : Ruptured MCA aneurysm alone revealed better consciousness on admission and final outcome than those combined with ICH. Ruptured MCA aneurysm alone showed 74% in H - H grade I, II and 82% in GOS I, II. But ruptured MCA aneurysm with ICH showed 63% in H - H grade IV, V and 52% in GOS IV, V.

Age, sex, lesion site, aneurysmal size, temporary clipping time, interval to operation, operative approach were statistically not significant in prognosis($p > 0.05$).

But H - H grade on admission($p < 0.05$), complication(esp. cerebral infarction)($p < 0.05$), preoperative ICH volume and site($p < 0.01$), preoperative midline shifting($p < 0.01$), remained ICH volume($p < 0.05$) showed significance statistically.

Conclusion : Prognostic factors are helpful to neurosurgeon to estimate clinical and neurological outcome post-operatively. We suggest that the good prognostic factors in ruptured MCA aneurysm with ICH were good H - H grade on admission, cerebral infarction(-), preoperative ICH volume $< 25\text{cc}$, temporal and intrasylvian ICH, preoperative midline shifting $< 5\text{mm}$, remained ICH volume $< 10\text{cc}$.

KEY WORDS : Intracerebral hematoma · Middle cerebral artery aneurysm rupture · Prognostic factor.

서 론

Norman Dott⁶⁾가 1933

가

²⁰⁾.

15)20)26)

, (fibrin),

(fibrous arachnoid)

가

*'99

*6th IWCVS

가 . 50 .

가 .

가 . 2)4)11)20)22) .

가 . (p<0.05), 60

가 . 60

가 . (p<0.05)(Table 2).

2. 남녀에 따른 예후

73% (p<0.01)

(p>0.05)(Table 1, 2).

3. 병변의 좌우에 따른 예후

(p<0.05)

148

148

14

51

83

34%

37%

11%

(midline shifting)

(temporary clipping time),

Glasgow outcome scale(GOS)

Chi square test Mann - Whitney (Wilcoxon) test, ANOVA test

Pearson correlation . p 0.05

가

SPSS/PC version 9.0

대상 및 방법

결 과

1. 연령에 따른 예후

Table 1. Demographic statistics of ruptured MCA aneurysm

	No. of case(%)	
	Group I	Group II
Age		
Range	33 - 76	34 - 76
Mean	51.8	54.7
Sex		
Male	38(46%)	14(27%)
Female	45(54%)	37(73%)*
Lateralization		
Lt	37(45%)	18(35%)
Rt	46(55%)	33(65%)*
H-H grade*		
I, II	62(74%)	5(10%)
III	12(14%)	14(27%)
IV, V	9(11%)	32(63%)
Aneurysm size		
Small	25(30%)	19(37%)
Medium*	44(53%)	24(47%)
Large	13(16%)	5(9%)
Giant	1(1%)	3(6%)
Complication		
Vasospasm	16(20%)	7(14%)
Hydrocephalus	6(7%)	7(14%)
Infarction	16(20%)	9(18%)

H-H grade : Hunt & Hess grade
 Small : 5mm, Medium : 6 - 12.5mm
 Large : 12.5 - 25mm, Giant : 25mm
 Group I : ruptured MCA aneurysm alone
 Group II : ruptured MCA aneurysm with ICH
 * : p<0.05

(p>0.05)(Table 1, 2).

H - H grade
(p<0.05).

4. 내원시 의식상태에 따른 예후

grade가 49% H - H grade grade 가 60% H - H grade 가 H - H grade 가

Table 2. Comparison of the outcome prognosis between two groups

Variant	No. of case(%)					
	Group I			Group II		
	GR, MD	SD	V, D	GR, MD	SD	V, D
Age						
<60	52(63%)	1(1%)	5(6%)	10(20%)	7(14%)	16(31%)
60<	17(20%)	1(1%)	7(8%)	8(16%)	2(4%)	8(16%)
Sex						
Male	35(42%)		3(4%)	3(6%)	3(6%)	8(16%)
Female	34(41%)	2(2%)	9(11%)	15(29%)	6(12%)	16(31%)
Lateralization						
Lt	31(37%)	2(2%)	4(5%)	6(12%)	4(8%)	8(16%)
Rt	38(46%)		8(10%)	12(24%)	5(10%)	16(31%)
Complication						
Vasospasm	12(14%)	1(1%)	3(4%)		3(6%)	4(8%)
Hydrocephalus	4(5%)	1(1%)	1(1%)	3(6%)	1(2%)	3(6%)
Infarction*	10(12%)		6(7%)		2(4%)	7(14%)

GR : good recovery(GOS I), MD : moderate disability(GOS II), SD : severe disability(GOS III)

V : vegetable(GOS IV), D : dead(GOS V)

Small : 5mm, Medium : 6 - 12.5mm, Large : 12.5 - 25mm, Giant : 25mm

Group I : ruptured MCA aneurysm alone, Group II : ruptured MCA aneurysm with ICH

*p<0.05 : prognosis factor

Table 3. Comparison of the outcome prognosis between two groups

Variant	No. of case(%)					
	Group I			Group II		
	GR, MD	SD	V, D	GR, MD	SD	V, D
H-H grade*						
I, II	53(64%)	1(1%)	8(10%)	4(8%)	1(2%)	
III	10(12%)		2(2%)	9(18%)	2(4%)	3(6%)
IV, V	6(7%)	1(1%)	2(2%)	3(6%)	6(12%)	21(41%)
Aneurysm sac size						
Small	18(22%)	2(2%)	5(6%)	8(16%)	4(8%)	7(14%)
Medium	40(48%)		4(5%)	9(18%)	5(10%)	10(20%)
Large	10(12%)		3(4%)	1(2%)		4(8%)
Giant	1(1%)					3(6%)
Temporary clipping time						
None	20(24%)		6(7%)	7(14%)	3(6%)	10(20%)
5min	22(27%)	1(1%)	1(1%)	7(14%)	1(2%)	8(16%)
5 - 15 min	16(19%)	1(1%)	5(6%)	3(6%)	4(8%)	6(12%)
15min	11(13%)			1(2%)	1(2%)	4(8%)

GR : good recovery(GOS I), MD : moderate disability(GOS II), SD : severe disability(GOS III)

V : vegetable(GOS IV), D : dead(GOS V)

Group I : ruptured MCA aneurysm alone, Group II : ruptured MCA aneurysm with ICH

Small : 5mm, Medium : 6 - 12.5mm, Large : 12.5 - 25mm, Giant : 25mm

*p<0.05 : prognosis factor

가 (p<0.05).

0.05),

가

(p<0.05)(Table 1, 2).

(Table 1, 3).

가

7. 혈종의 크기에 따른 예후

가

가 (p<0.01).

5. 뇌동맥류 크기에 따른 예후

가 25cc

25cc

가 25

medium size(6~12.5mm)가 가

(p<0.05),

cc

가

(p<0.01). 3

(Table 1, 3).

(p>0.05)

가 25cc

1

H - H grade가

, 1

, 1

(Table 4)(Fig. 1).

6. 합병증 유무에 따른 예후

8. 혈종의 위치에 따른 예후

Temporal, Intrasyllvian, Frontal,

Frontotemporal type

(p>0.05),

(p>

가 (p<0.01)

Table 4. The outcome prognosis of ruptured MCA aneurysm with ICH

Temporal, Intrasyllvian type

Frontotemporal type

가

(p<0.01).

Frontotemporal type

(Table 4)(Fig. 4).

	No. of case(%)				
	GD	MD	SD	V	D
Hematoma volume**					
<25cc**	8(16%)	4(8%)	3(6%)		3(6%)
25 - 40cc	1(2%)	3(6%)	2(4%)	1(2%)	6(12%)
40cc<	1(2%)	1(2%)	4(8%)	4(8%)	10(20%)
Midline shifting**					
<5mm*	9(18%)	5(10%)	4(8%)	1(2%)	5(10%)
5 - 10mm	1(2%)	2(4%)	4(8%)	2(4%)	5(10%)
10mm<		1(2%)	1(2%)	2(4%)	9(18%)
Remained hematoma volume*					
<10cc*	6(16%)	3(8%)	1(3%)		4(11%)
10 - 25cc	2(5%)	2(5%)	4(11%)	3(8%)	5(14%)
25 - 40cc			1(3%)	1(3%)	4(11%)
40cc<					1(3%)
Hematoma type**					
Temporal**	5(10%)	3(6%)	2(4%)	2(4%)	2(4%)
Intrasyllvian**	3(6%)	3(6%)	2(4%)		
Frontal		1(2%)	1(2%)		2(4%)
Frontotemporal	2(4%)	1(2%)	4(8%)	3(6%)	15(30%)
Surgical approach					
Transsyllvian	5	3	1	3	7
Combined	3	2	5	1	7

GR : good recovery(GOS I), MD : moderate disability(GOS II)
SD : severe disability(GOS III), V : vegetable(GOS IV)
D : dead(GOS V)
Combined : combined transcortical transsyllvian approach
* : p<0.05, ** : p<0.01 : prognostic factors

9. 중심이동에 따른 예후

가

(p<0.01), 5mm

5mm

(p<0.05), 5mm

가

. 5mm

5

1

1

, 3

H - H grade

3

53.6

(Table 4)(Fig. 2).

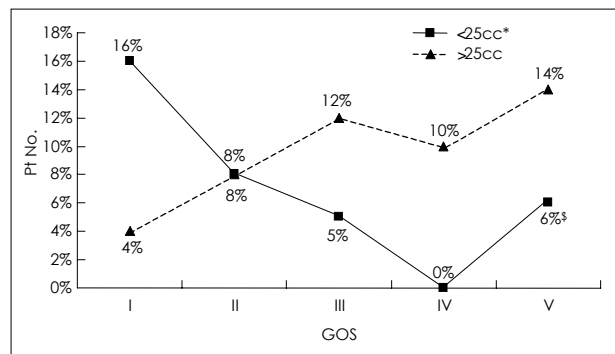


Fig. 1. GOS according to hematoma volume. Correlation of initial hematoma volume and GOS ; p<0.01. * : p<0.05 good outcome than other volume. \$: 1 case : pneumonia and infarction, 1 case : pneumonia, 1 case : H-H grade IV.

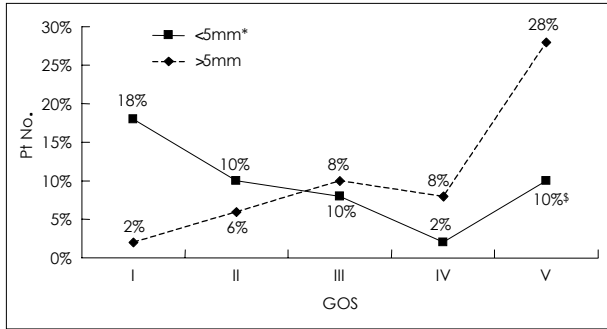


Fig. 2. GOS according to midline shifting in preop CT scan. Correlation of initial midline shifting and GOS : $p < 0.01$. * : $p < 0.05$ good outcome than other midline shifting. \$: 3 case : H-H grade IV, 1 case : pneumonia and infarction, 1 case : pneumonia

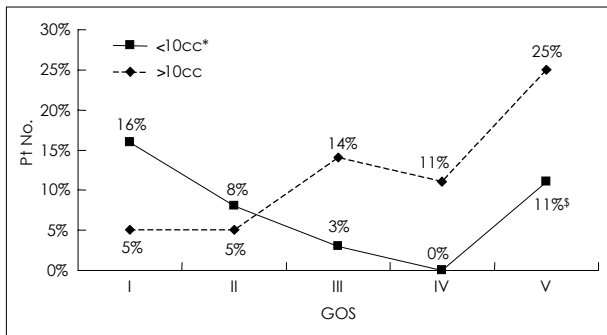


Fig. 3. GOS according to the remained hematoma volume. Correlation of remained hematoma volume and GOS : $p < 0.05$. * : $p < 0.05$ good outcome than other remained volume. \$: 3 case : H-H grade IV, initial hematoma volume ($>35cc$), midline shifting $>15mm$, 1 case : pneumonia.

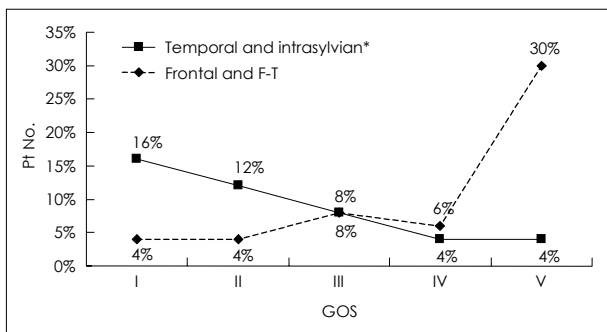


Fig. 4. GOS according to the remained hematoma volume. Correlation of hematoma type and GOS : $p < 0.05$. * : $p < 0.05$ good outcome than other type.

10. 술후 남아있는 혈종의 크기에 따른 예후

가 (p<0.05), 10cc 10cc (p<0.05). 10cc 4 3 H-H grade가 , 가 52.5cc(80cc, 55cc, 35cc) 가 (p>0.05).

가 , 1 (Table 4)(Fig. 3).

11. 술중 일시적 혈류차단시간에 따른 예후

가 (p>0.05) 15 15 20

(Table 3).

12. 수술 시기에 따른 예후

3 3 3 3 가 가 가 가 가

13. 수술 방법에 따른 예후

(transcortical approach) (transsylvian approach) (superior temporal gyrotomy) (combined transcortical transsylvian approach)

(p>0.05)(Table 4).

14. 다른 동맥류 파열과 비교

가 51% 가

고찰

Reynolds Shaw¹⁸⁾ 가

가 8)13)16)17)19)25)26),

1) 가

Plum Posner¹⁷⁾ ,

18) 가

Wheelock²⁶⁾ ,

Tokuda²³⁾ ,

47% , Locksley¹²⁾ ,

72 90%가 60 ,

25cc ,

20) ,

42% ,

19~ 가 50

34% 16)20)23) , 2

628 99 15% Broderick⁵⁾ 2

48~ Kim¹⁰⁾ ,

55% 16)20)23) 148 51 가

34% ,

26) 55%, Papo¹⁵⁾ 28% Wheelock 25cc , 5mm ,

Reynolds Shaw¹⁸⁾ 가 intrasylvian type , temporal, ,

46%, 33%, 가

13% ,

99 (perforating artery)

가 51 50% 가

Drake⁷⁾ Pasqualin¹⁶⁾ 가

가

Tapaninaho²²⁾ 41%, Shimoda²⁰⁾ 38% ,

37% ,

50%, ,

47%, 37% ,

16) 15

가

결론

가

2)4)11)20)

가

가

(good H - H grade),

가

25cc

가

가

, intrasylvian

5mm

10cc

Norman Dott⁶⁾

가 1933

가

(medial transsylvian approach)

(lateral transsylvian approach)

가

(superior tempo-
ral gyrus)

가 1960

(superior tempo-
ral gyrus)
Tonniss Walter²⁴⁾

Berger³⁾가 1977

• : 2001 7 10

• : 2001 11 3

• :

602 - 739

17가 10

: 051) 240 - 7257,

: 051) 244 - 0282

E - mail : MD8752@chollian.net

Yarsargil

References

Fox²⁷⁾가 1975

가

(M1)

(dissection)

가

21)

가

21)

14)

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