

뇌경색 환자의 치료 및 예방에 있어서 우회로수술의 효과

Effectiveness of Bypass Surgery in Treatment and Prevention for Cerebrovascular Occlusive Disease

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Abstract

To study the effect of extracranial - intracranial(EC/IC) bypass on symptomatic patients with hemodynamic cerebral ischemia, we prospectively reviewed 76 patients who underwent EC/IC bypass surgery in patients with occlusive cerebrovascular disease. A series of 76 patients treated in a 7 years period met following criteria. symptomatic internal carotid artery(ICA) or middle cerebral artery(MCA) obstruction or stenosis over 80%. decrease in basal cerebral blood flow(CBF) over 10%. decreased reactivity of CBF in response to acetazolamide. Among these, the types of ischemic episodes were transient ischemic attack(TIA) or reversible ischemic neurological deficit(RIND) in 39, minor stroke in 22, and major stroke in 15. Based on our criteria, superficial temporal artery(STA) - MCA anastomosis was performed in 67 cases and EC - IC bypass grafting using saphenous vein or radial artery in 9. Average follow up period was 26 months(3 months-7 year). Patency of bypass was confirmed by post-operative angiography or magnetic resonance angiography(MRA) in all case except four cases. Of the 72 patients with patency of bypass, 68 patients(94%) have had an excellent to good outcome with improvement of preoperative neurologic or cognitive dysfunction, 3 patients showed no improvement of preoperative neurologic symptoms and remaining one patient had new developed deficit. All 72 patients with patency of bypass had experienced no further cerebral ischemic events during following period. Postoperative significant improvement of CBF to acetazolamide was showed in 68 cases(94%) of the 72 cases with patency of bypass, while the basal CBF showed significant improved in 31cases. Postoperative permanent neurologic deficit occurred only in one. In view of these finding, the author suggest that EC - IC bypass surgery is a reliable and resonably safe method for establishing new pathways of collateral circulation to the brain and to be considered as an appropriate therapy for improvement of the cerebrovascular reserve capacity in patients with hemodynamic cerebral ischemia, defined using the strict selection criteria employed in this study.

Keywords : Extracranial - intracranial bypass surgery; Occlusive cerebrovascular disease;
Cerebral blood flow; Hemodynamic cerebral ischemia; Cerebrovascular reserve capacity

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(1)
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1985 가
(2). (18).
Acetazolamide 가 가
Acetazolamide (가
(3~5). , 가
)
(6~9). (18, 19).
Acetazolamide (vasoreactivity)
(5, 10~17). 1.
() 가 100 g 1 50~55
) ml .

	1.		76		
	MCA Lesion(30)	ICA Lesion(27)	MCA + ICA Lesion(3)	Moyamoya (14)	Trauma (2)
Age					
Mean	56.5	58.2	69	21	60
Range	(45~68)	(49~70)	(65~72)	(6~35)	(58~62)
Sex(M:F)	19 : 11	20 : 7	3 : 0	4 : 10	0 : 2
Neurological Status					
Major deficit(15)	7	5	2		1
Minor deficit(22)	11	9	1	1	
No deficit(39)	10	15		13	1
MRI findings					
MCA infarct(13)	9	3			1
Boderzone infarct(16)	4	8	1	3	
Basal gangl infarct(15)	8	6	1		
Multiple lacunar infarct(13)	6	6	1		
Negative(19)	3	4		11	1

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(5, 12, 14, 21).

2.

CMRO2

(Oxygen extraction fraction, OEF) 가

20 ml / 100 g /

12 ml / 100 g /

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(20).

80%

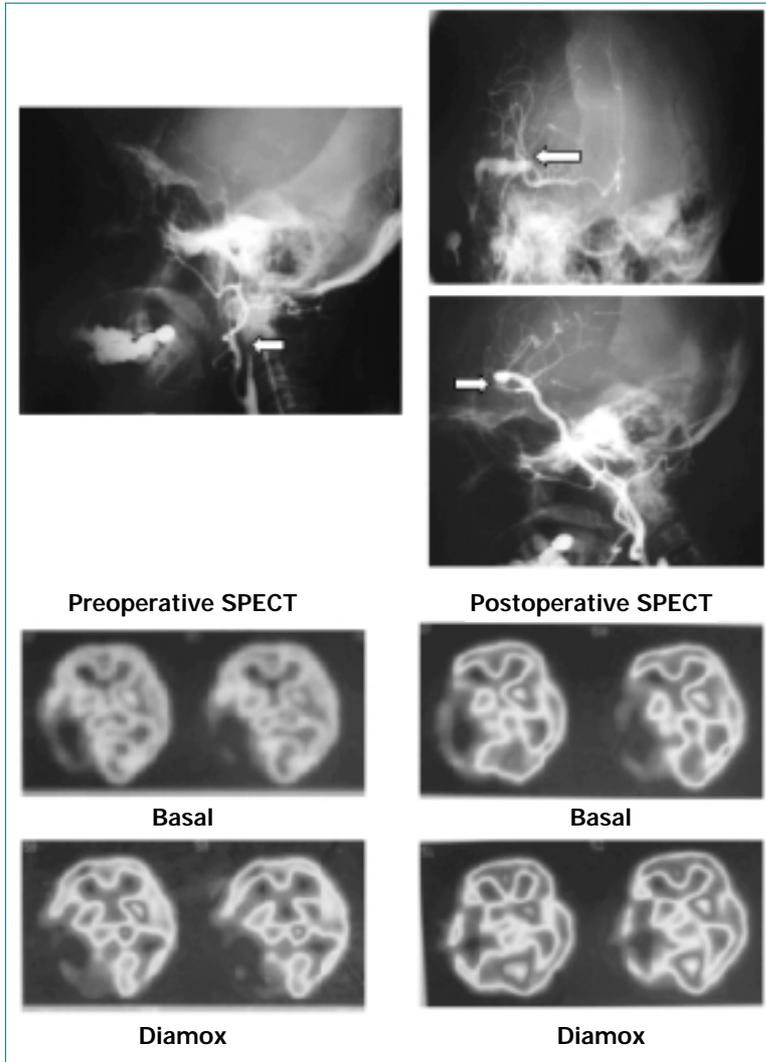
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, 가

80%

10%



, Acetazolamide

10%

CT MRI 가

3.

7

Actazolamide

76

76

60 가

(27)

(30)

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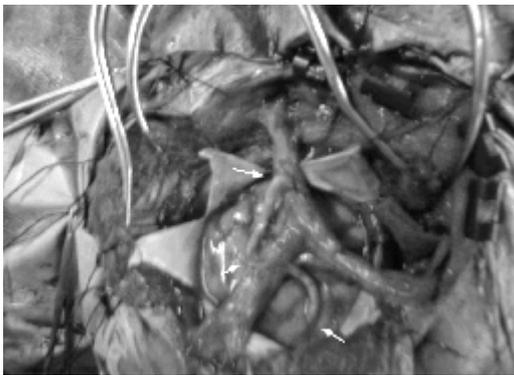
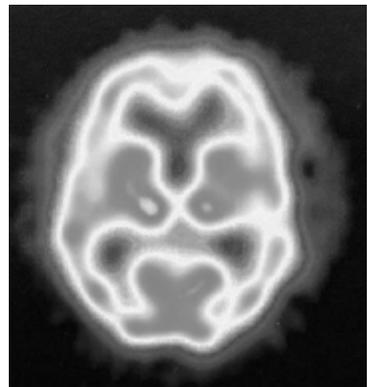
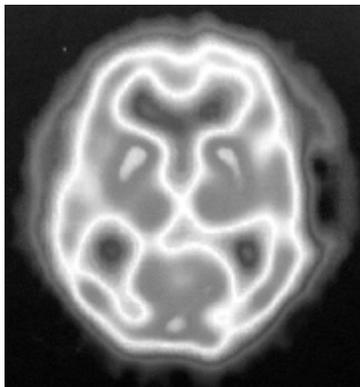
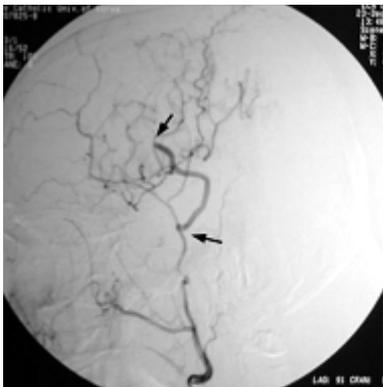
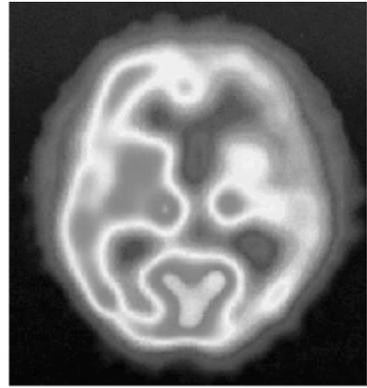
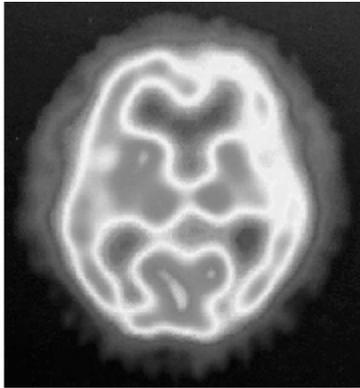
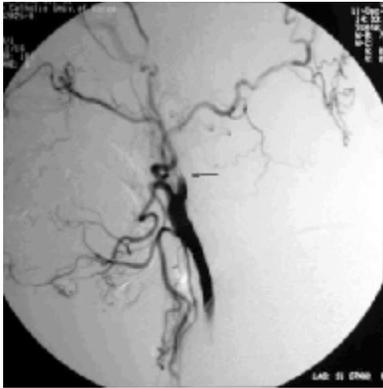
) Acetazolamide 가

) Acetazolamide (steal phenomenon)

,) () 가 가 가 39 (

Acetazolimide () 가 가 : 25 , :

1. 13 , : 1),



:) ()
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) Acetazolamide (steal phenomenon)
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2.

(minor stroke)가 22 (: 1) .(1) 76 9
 21 , 1) (8) (1)
 (major stroke)가 15 , 4

63 7 , 3 , 2
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 가 1 . 5
 4.
 4 , 12
 2 2 .
 가
 (3 ~7) 가
 1 가
 Acetazolamide
 12 3 SPECT
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 22 1
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 15 12
 3 5.
 가
 7 . 5
 , 2 가 . (23, 24). 5
 SPECT Acetazo-
 lamide
 (Asymmetry Index, AI)
 AI가 10% 가 가 50 (69%),
 10% 가 18 (25%) , 3
 (5%) 가
 가 1 AI가
 5 , 12
 (12 , 가 .

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