

농형(聾型) 돌발성난청의 청력회복

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전경명 · 고의경 · 이일우

Hearing Recovery of Profound Sudden Deafness

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-ABSTRACT-

Background and Objectives : The number of patients with sudden deafness has gradually increased recently. Also it tends to be more severe in degree of hearing loss and poorer prognosis. Especially in profound sudden deafness, the recovery rate is poorer than non-profound sudden deafness. So we hypothesize profound sudden deafness has somewhat different healing process compared with non-profound sudden deafness and analysed clinical characteristics of this disease. **Materials and Methods** : We reviewed the chart of 555 cases of patients with sudden deafness from January of 1995 to December of 2001. Of 555 cases profound hearing loss was found in 78 cases (14.1%) . **Results** : 1) The recovery rate of profound sudden deafness was 55.1%, which was lower than that of non-profound sudden deafness. Profound sudden deafness shows more frequent in female and the highest incidence at fifth decade. The recovery rate was also highest at the same age group. 2) Incidence of dizziness was higher in profound group and was related to the lower recovery rate than cases without dizziness. 3) About 30% of profound sudden deafness had mild to total deafness on the opposite side, which cases had poor prognosis than cases with normal hearing of the opposite side. 4) 55.1% of profound sudden deafness had increasing IgG titer in viral antibody study, which was higher rate than non-profound sudden deafness. 5) Many cases of profound sudden deafness had retrocochlear abnormality compared to non-profound sudden deafness. 6) In profound sudden deafness cases, so-called critical point from onset to beginning of treatment was 10 days, which had statistical significance. 7) The later begining of treatment was performed, the worse of final hearing threshold was resulted, and there was negative correlation between them ($r=-0.429$), and was statistically significant ($p=0.004$) . 8) In about 49% of profound sudden deafness cases, fixing period of final hearing level was longer than 3 weeks, which suggested that the longer duration of treatment is necessary than usual sudden deafness. **Conclusion** : It was suggested that profound sudden deafness has more severe in pathologic abnormality than non-profound sudden deafness. Especially the rate of viral infection was higher in profound sudden deafness group. It may have good recovery result with somewhat longer duration of intensive care. (J Clinical Otolaryngol 2003;14:81-91)

KEY WORDS : Profound sudden deafness · Hearing recovery.

: 2003 1 20
: 2003 4 15
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서 언

가 91 dB
78 (14.1%)

23 가

3

가

가

가

, carbogen

, dextran,

가

Siegel

(Table 1)

5%

재료 및 방법

1995 1

2001 12

MRI

555

250, 500, 1K,

2K 4 KHz

6

결 과

청력회복

78

Siegel

4 (5.1%),

Table 1. The siegel's criteria of hearing improvement

Type	Hearing recovery
Complete recovery	Final hearing better than 25 dB
Partial recovery	More than 15 dB gain, final hearing 25 - 45 dB
Slight improvement	More than 15 dB gain, final hearing poorer than 45 dB
No improvement	Less than 15 dB gain, final hearing poorer than 75 dB

9 (11.5%),

78

43 (55.1%)

35

(Table 2).

연령 및 성별분포와 예후

78

Table 2. Recovery rate related to sex

(%)

Sex	Comple. recov.	Partial recov.	Slight improv.	No improv.	Total	Recovery rate
Male	4	6	9	16	35 (44.9)	54.3
Female		3	21	19	43 (55.1)	55.8
Total (%)	4 (5.1)	9 (11.5)	30 (38.5)	35 (44.9)	78 (100)	55.1

: (형)

35 (44.9%), 43 (55.1%), 3 가 34 (43.6%), 4, 6, 가 50 (64.1%), 10 가 61 (78.2%), 9 54.3%, 2 가 70 (89.7%) 가 55.8%, 3, 21 2 3 34 가 (p>0.05)(Table 2). 2 (5.9%), 3 (8.8%), 13 9 84 41.6, (38.2%), 16 (47.1%), 4~7 10 1 (1.3%), 10 7 (9.0%), 20 4 16 1 (6.3%), 2 (5.1%), 30 25 (32.1%), 40 16 (20.5%), 50 (12.5%), 8 (50%), 5 (31.3%) 14 (17.9%), 60 10 (12.8%), 70 1, 8~10 11 1 (9.1%), (1.3%), 30 50 가 70.5%, 3 (27.3%), 4 (36.4%), 3 (27.3%) . 11~14 9 (Table 3). 1 (11.1%), 3 (33.3%), 30 72%, 50 57.1%, 40 56.3% 5 (55.6%), 15~21 4 가 (p>0.05), 1, 3 30~50 . , 22~30 3 1, 2, 31 1 .

발병에서 치료개시까지의 일수와 예후

critical point

Table 4 7 7 50

Table 3. Recovery rate related to age

Age	Comple. recov.	Partial recov.	Slight improv.	No improv.	Total (%)	Recov. rate (%)
- 9				1	1 (1.3)	0
10 - 19		1	1	5	7 (9.0)	28.6
20 - 29		1	1	2	4 (5.1)	50
30 - 39	1	4	13	7	25 (32.1)	72
40 - 49	1	1	7	7	16 (20.5)	56.3
50 - 59	1	2	5	6	14 (17.9)	57.1
60 - 69	1		3	6	10 (12.8)	40
70 - 79				1	1 (1.3)	0
Total	4	9	30	35	78 (100)	

Table 4. Recovery rate related to time of initial treatment

Duration (day)	Comple. recov.	Partial recov.	Slight improv.	No improv.	Total (%)	Recov. rate (%)
- 3	2	3	13	16	34 (43.6)	52.9
- 7	1	2	8	5	16 (20.5)	68.8
- 10	1	3	4	3	11 (14.1)	72.7
- 14		1	3	5	9 (11.5)	44.4
- 21			1	3	4 (5.1)	25
- 30			1	2	3 (3.8)	33.3
31 -				1	1 (1.3)	0
Total	4	9	30	35	78 (100)	

가 29 (58%) , 7 28 반대측의 청력
 14 (50%)가 , 10 critical 가 78
 point 10 61 37 (60.7%), 55 (70.5%) 가 9
 11 17 6 (35.3%)가 (11.5%), 6 (7.7%), 2 (2.6%), 4
 . 7 , 7 7 (5.1%), C5 dip 2 (2.6%)
 가 23 (29.5%) . 55
 (p>0.05), 10 33 (60%) , 23
 가 (p<0.05), critical point 10 . 10 (43.5%)
 10
 가 . (p>0.05)(Table 6).

동반증상 (59.4%) 64 38
 Table 5 78 가 63 14 5 (35.7%)
 (80.8%) , 가 15 (19.2%) (p>0.05).
 , 63 37
 (58.7%), 15 6 (40%)
 가 (p>0.05).
 78 50 (64.1%),
 가 28 (35.9%)
 . 50 Fig. 1 가
 26 (52%), 가 -0.429 (負) 가
 28 17 (60.7%) (p=0.004).
 가
 (p>0.05). , 가 3 , 가
 39 .

회복이 시작되는 시기

Table 5. Recovery rate related to accompanied symptoms

Symptoms		Comple. recov.	Partial recov.	Slight improv.	No improv.	Total (%)	Recov. rate (%)
Tinnitus	+	4	7	26	26	63 (80.8)	58.7
	-		2	4	9	15 (19.2)	40
Vertigo	+	2	6	18	24	50 (64.1)	52
	-	2	3	12	11	28 (35.9)	60.7

Table 6. Recovery rate related to hearing in opposite ear

Degree of H.L.	Comple. Recov.	Partial recov.	Slight improv.	No improv.	Total (%)	Recov. rate (%)
Normal	4	7	22	22	55 (70.5)	60
Mild			5	4	9 (11.5)	55.6
Moderate			2	4	6 (7.7)	33.3
Severe				2	2 (2.6)	0
Profound		1	1	2	4 (5.1)	50
C5dip		1		1	2 (2.6)	50

43
10 , 21
22
가 (p=0.229), 14
27
16 가 (p<0.05),
(Table 7)(Fig. 2).

Virus 항체가의 상승

virus 가 ,
virus herpes, varicella zoster(V - Z), cytomegalo

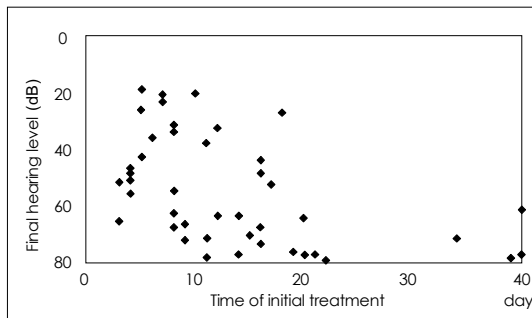


Fig. 1. Relationship between time of initial treatment and final hearing level.

Table 7. Recovery date in improved 43 cases

Recovery date (day)	Complete recovery	Partial recovery	Slight improv.	Total (%)
-3			2	2 (4.7)
-7	3	3	4	10 (23.3)
-10	1	2	6	9 (20.9)
-14		2	4	6 (14.0)
-21		2	9	11 (25.6)
22-			5	5 (11.6)
Total	4	9	30	43

Table 8. Recovery rate related to virus IgG positive cases

Virus	C.R.	P.R.	S.I.	N.I.	Positive cases	Recov. rate (%)	IgG (+)/43 cases	IgG (+)/78 cases
Herpes	1	4	5	8	18	55.6	41.9	23.1
V-Z	1	4	7	6	18	66.7	41.9	23.1
CMV	2	4	9	15	30	50	69.8	38.5
Mumps				1	1	0	2.3	1.3

V-Z : Varicella-zoster, CMV : Cytomegalo, C.R. : Complete recovery, P.R. : Partial recovery, S.I. : Slight improvement, N.I. : No improvement

: (환형)

(CMV), mumps, measles virus IgM IgG
가 . IgM 1
, IgG virus IgG 가가
virus .
IgG가 78 43
(55.1%) , 43 herpes virus IgG
18 (41.9%), V - Z virus 18 (41.9%), CMV
30 (69.8%), mumps 1 , measles 0 CMV
(Table 8).

herpes virus IgG

18 10 (55.6%)가 , V - Z virus
IgG 18 12 (66.7%)가
, CMV 30 15 (50%)가
CMV 가
(p>0.05).

주파수별 청력회복 정도

250 Hz 61.4 dB 가 가 ,

Fig. 3

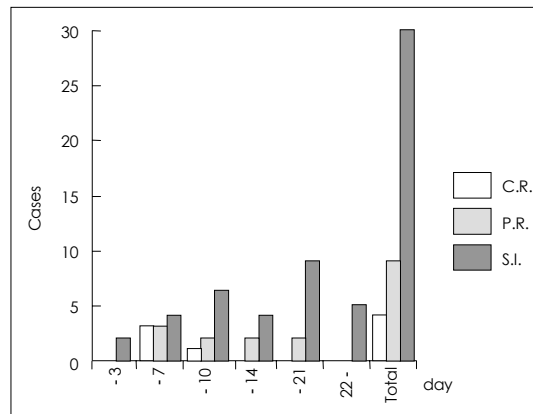


Fig. 2. Recovery date in improved 43 cases.

500 Hz 68.3 dB, 1 KHz 76.2 dB, 2 KHz 80.2 dB, 4 KHz 84.7 dB 가
 가 , 250 Hz 500 Hz 2 K 4 KHz
 (p<0.001).

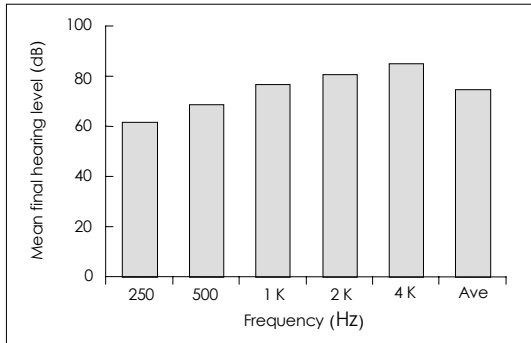


Fig. 3. Mean final hearing level related to frequency.

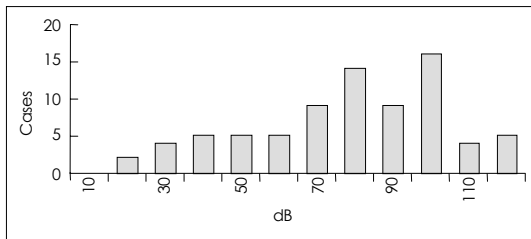


Fig. 4. Cases related to mean final hearing level.

가 60~100 dB
 가 78 48 (61.5%) , 30 dB 가 6
 (7.7%), 30~60 dB 15 (19.2%) , 100 dB
 9 (11.5%)
 (Fig. 4).

보중현상 유무와 예후

SISI 80% , Bekesy
 Jerger type 가
 . Table 9 65
 40 (61.5%), 25
 (38.5%) 가 ,
 40 27 (67.5%), 25 9
 (36%) ,
 (p<0.05).

청력이 고정되는 시기

가 43
 가 3
 , 71
 Table 10
 가 32.6%, 2 가 67.4%
 2 , 4

Table 9. Recovery rate related to recruitment phenomenon

Recruitment phenomenon	Complete recovery	Partial recovery	Slight improv.	No improv.	Total (%)	Recovery rate (%)
Positive	2	6	19	13	40 (61.5)	67.5
Negative		3	6	16	25 (38.5)	36

Table 10. Fixing period of final hearing level in improved 43 cases

Fixing period (day)	Complete recovery	Partial recovery	Slight improv.	Total (%)
-7			2	2 (4.7)
-14	3	2	7	12 (27.9)
-21	1	5	8	14 (32.6)
-28		1	8	9 (20.9)
-45		1	3	4 (9.3)
46 -			2	2 (4.7)
Total	4	9	30	

: (형)

14%

2 K, 4 KHz

91 dB

고 찰

14.1% , Chon⁴⁾
 24.5%, Mitsushima⁵⁾ 28.4% ,
 Sano¹⁰⁾ 10%, Yano¹¹⁾ 13.0%
 가 , ¹⁾ virus , ²⁾ 가
³⁾ , ⁴⁾ , ⁵⁾ 가

 55.1% Chon⁴⁾
 62.4%
 Sano¹⁰⁾
 4)6) 51 86.3%, Mitsushima⁸⁾ 42
 85.7%, 29 72.4%, Yanagita¹²⁾ 92
 83.7%, Yano¹¹⁾ 41 75.6%, Oya⁹⁾
 64 71.9%, Ogawa¹³⁾ 29 65.5%,
 Koike¹⁴⁾ 30 63.3%, Chon⁴⁾ 64
 42.2%
 55.1%
 가 가⁷⁾ 가 , 가
 가 가
 가 가⁶⁾ Siegel , Siegel
 가 (final hearing)
 (형)
 가
 , Siegel
 가
 가
 Mitsushima⁸⁾ scale out Yano¹¹⁾ 가 1 : 1.7, Sano¹⁰⁾ Ogawa
 , scale out 2 ¹³⁾ 1 : 1.6, Mitsushima⁸⁾ 1 : 1.5 , Koike
 , Oya⁹⁾ 85 dB ¹⁴⁾ 1 : 1.1 1 : 1.2
 , Sano¹⁰⁾ 5
 100 dB 1.1~1.4 : 1
 , ISO 250, 500, 1 K, ⁴⁾⁸⁾¹⁰⁾

가
 , 가 , , critical point 10
 , 가 , , 3 가 4
 , 1 ,
 41.6 , critical point
 30 1/3 , 30~50 가 ,
 가 70% ,
 . Mitsushima ⁸⁾
 48.3 , Yano ¹¹⁾
 52.7 75%가 40 , ⁴⁾ 가
 . Oya ⁹⁾ 30~50 가 62.5%
 , 30 1/4 . Ogawa
¹³⁾ 51.7 , Koike ¹⁴⁾ 47.7
 41.6~52.7 가
 40 50
 가 35 19 (54.3%) 가
 가 , 43 24 (55.8%)가
 가 (p>0.05), 4 가
 , Koike ¹⁴⁾ 64.1% 가
 42.5%⁴⁾
 Yanagita ¹²⁾ 93.3%, Yano ¹¹⁾ 92.9%, Yanagita ¹²⁾
 , Yano ¹¹⁾ 50 59.8%, Oya ⁹⁾ 56.3%, Mitsushima ⁸⁾
 89.7% , 50 69.2% 40.5%, 62.1%, Sano ¹⁰⁾
 . Oya ⁹⁾ 54.9%가
 10 , 20 , 30 80%
 가, 40 60%
 , Koike ¹⁴⁾
 , 30~40 , 50 20 Sano ¹⁰⁾ Mitsushima ⁸⁾ Oya ⁹⁾ Ogawa
¹³⁾ Koike ¹⁴⁾ 가
 , Yanagita ¹²⁾
 Oya ⁹⁾ 61.1%,
 85.7% , Sano ¹⁰⁾
 82.1%, 91.3%
 가
¹⁰⁾¹¹⁾¹³⁾¹⁴⁾ 가
 가 ⁸⁾ , Yanagita ¹²⁾
 가 1
 , 3 가

: (혈청)

29.5%가 가

가 가

가

herpes, varicella - zoster, cytomegalo, mumps, measles virus virus IgM

IgG 가 , IgM

IgG

가 2~3

IgG 가 virus

IgG 가가

virus 가

Yano ¹¹⁾ 55.1% virus

{(-)/(- , virus가) × 100%}

가 virus

Ogawa ¹³⁾ 6 virus 가가

가 , Yano ¹¹⁾ 1 virus

Yanagita ¹²⁾ 21 virus

scale out

Sano ¹⁰⁾ 가 , 15 ²⁾

(負) 가

가

가 , Schuknecht ¹⁵⁾ Hood Berlin, ¹⁶⁾ Albers ¹⁷⁾

43 가 , 14 Kurokawa ¹⁸⁾

34 , 14 Schuknecht Donovan, ¹⁹⁾ Cole Jahrsdoerfer, ²⁰⁾

39.5% Einier ¹⁾ Corti

가 3 34.9%, 4 14.0% measles, rubella virus

, virus

- globulin

2 Sano ¹⁰⁾

가

가 가

Ogawa¹³⁾, Yano¹¹⁾, Sano¹⁰⁾, Yanagita³⁾

가

out 가 가 가 가

가

가 가

61.5%가

86.1%⁴⁾

가

가 30%

가

Virus 가 IgG 55.1%

virus

가

critical point 10 가

가

(r = - 0.429)가

가 3 49%

가 가 virus

가

요 약

중심 단어 :

REFERENCES

가 , 1995

1 2001 12

555 , 250,

500, 1 K, 2 K, 4 KHz 가 91 dB

78 (14.1%)

55.1%

, 40 50

, 30~50

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: (體型)

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