

# Ménière병의 내과적 치료

정 원 호 · 이 현 석

## Medical Treatment of Ménière's Disease

Won-Ho Chung, MD and Hyun-Seok Lee, MD

Department of Otorhinolaryngology-Head and Neck Surgery, Sungkyunkwan University School of Medicine, Samsung Medical Center, Seoul, Korea

서 론

Ménière는 , , nière 가 , Mé-  
 Ménière , , nière 가 ,  
 . 30~40 , (placebo effect) . 1977  
 Torok 834 ,  
 가 60~80% )  
 .<sup>2)</sup> 1991  
 Ruckenstein<sup>3)</sup> Ménière  
 ,  
 Ménière (vestibular suppressants)  
 Ménière  
 Ménière  
 (Table 1).  
 Ménière 가 가  
 .  
 80%  
 가 가  
 : , 135 - 710 50  
 : (02) 3410 - 3579 . : (02) 3410 - 3879  
 E - mail : whchung@smc.samsung.co.kr  
 Ménière  
 가 .

Ménière (dietary modification), 5 mg  
 3 5 mg  
 (daytime  
 (Pubmed, Cochrane, EMBASE) sedation) 가 (ataxia)

**급성 발작(Acute Vertigo)시의 치료**

(vestibular suppressants) (antiemetics)가 진토제  
 Anticholinergic  
 Glycopyrrolate(Robinul)  
 Diazepam  
 가 1~2 mg 0.1~  
 0.2 mg 4  
 Diazepam(Valium)  
 GABA - ergic system (glaucoma) 가

**Table 1.** Medical treatment of Ménière's disease

Symptomatic treatment of acute attack	
Vestibular suppressants	Antidopaminergic
Antiemetic drugs	
Anticholinergic	Droperidol(Inapsine)
Antidopaminergic	Butyrophenone 가
Antihistamines	(extrapyramidal)
Primary treatment of endolymphatic hydrops	
Diet modification	phenothiazine
Pharmacologic treatment	2.5~10 mg 5
Diuretics	mg
Vasodilators	
Calcium channel blockers	
ACE inhibitors	Prochlorperazine(Compazine)
Steroids & immunosuppressants	Piperazine phenothiazine
Lipoflavins and vitamins	가
Intratympanic gentamicin	10 mg 4~6
Non-pharmacologic treatment	50% (drowsi-
Ventilation tube insertion	ness)
Local overpressure treatment	
Stress reduction & Psychologic support	
Vestibular rehabilitation	

: Ménière

Antihistamines Pubmed(<http://www.ncbi.nlm.nih.gov/entrez/query/static/clinical.shtml>), Cochrane (<http://www.cochrane.org/index0.htm>), EMBASE (<http://www.embase.com/>)

Dimenhydrinate(Dramamine)  
Ménière

가 . 가  
50~100 mg 3~4  
가 .

식이요법(Diet modification)

1934 Furstenberg Ménière  
, 가  
. <sup>5)</sup> 1975 Boles  
. <sup>6)</sup>

Diphenhydramine(Benadryl)  
50 mg

4~6

1 800~1000 mg  
. 1981 Jackson

Meclizine(Antivert, bonine)

57.9%

가

24

가

25~100 mg

1 1500 mg

가

Promethazine(Phenergan)

phenothiazine antihistami-  
nic activity central cholinergic blocking activity가  
25 mg 4~6 12.5~25  
mg 가

가

약물치료요법(Pharmacologic treatment)

(Diuretics)

Hydroxyzine  
1 25~50 mg

. 1962 No-  
rell Ménière hydrochlorothiazide  
(HCTZ) <sup>8)</sup> Ménière

randomized controlled study(RCT)가  
Pubmed 가

Ménière병의 근본적 치료

. 1967 Klockhoff Lindblom <sup>9)</sup> HCTZ  
, 50 75%

Ménière

가

가

. Van Deelen Huizing <sup>10)</sup> Dyazide가  
(<10%) (51%)

가 . , 가

Thiazide diuretics (uric acid) 가

. Glycerol 250~500 mg

Methazolamide(Neptazane)  
Carbonic anhydrase inhibitor Ménière  
thiazide diuretics 가 3 50~

Hydrochlorothiazide 50 150 mg, 5 3 50~

mg .

Dyazide allergy, , sulfa

HCTZ triamterene(potassium sparing diuretic)

(vasodilators)

Furosemide(Lasix) Ménière (stria vas-  
cularis) 가

Loop diuretics , ascending loop of Henle chloride

, prerenal azotemia, . Histamine, betahistine, nicotinic acid

Thiazide diuretics 가 randomized controlled study Ménière ran-  
domized controlled study 가 2001 James  
12) systemic review betahistine

15 가 4 10~80 mg 가 가

Amiloride 가 가

. Moduretic Calcium channel blockers  
HCTZ amiloride Nimodipine Ménière 가  
13) (subarachnoid he-  
Acetazolamide(Diamox) so- morrhage) FDA  
Carbonic anhydrase inhibitor . Corvera 11) 가 .  
dium bicarbonate .  
acetazolamide chlorthalidone

가 . , 가 , 가 가 30 mg 1 2 . 가

: Ménière

B12<sup>19)</sup> 가 Ménière

ACE inhibitors  
 Renin - angiotensin - aldosterone system 가

Lipoflavins and vitamins  
 Williams <sup>20)</sup> histamine  
 Ménière  
 Eriodictyol glycoside(lemon bioflavonoid extract) histidine decarboxylase histamine  
 Ménière  
 가 가 Williams 122 Ménière  
 가 lemon bioflavonoid complex 가 <sup>20)</sup>  
 Ménière 가  
 Rauch 30% Mé-  
 nière heat shock protein 70 Fanciclovir  
 circulating antibody가 Derebery 12 Ménière famci-  
 가 Ménière 가 clovir 11 가  
<sup>21)</sup>

가 고실내 겐타마이신 주입술

Shea <sup>14)</sup> Ménière 48  
 dexamethasone 2  
 66.7%  
 Sennaroglu <sup>15)</sup>  
 3 dexamethasone 72%  
 16%  
 38% Barrs <sup>16)</sup> 1  
 3 86%  
 6 43%

chemical ablation Chemical  
 ablation 1940 strep-  
 tomycin  
 Ménière  
<sup>22)</sup> 1978 Beck Schmidt <sup>23)</sup>

(dark cell)  
 Ménière  
 가 <sup>24 - 26)</sup>  
 가 <sup>25)26)</sup>  
 가 <sup>17)</sup> 가 <sup>27)28)</sup>

plasmapheresis,<sup>18)</sup> immunoglobulin G with methyl

Ménière (Administration modalities)

(pharmacokinetics) (injection through the intact tympanic membrane), (microcatheter), sustained release vehicle

(Pharmacokinetics) transtympanic catheter

(round window), (oval window), (small lacunae in the otic capsule) 1

(lamina propria) 가 Sustained release vehicle (fibrin glue, gelfoam, active delivery device)

(entry site) 2

2001 Hibi (가 75 ) ITGM (4~40 mg)

(sustained release vehicle) Vestibular ablation 10~40 mg/ml <sup>36)</sup>

<sup>31)</sup> ITGM (susceptibility)가 ITGM protocol titration (variable end - point) technique fixed (predetermined dose) technique 가 . Fixed technique , titration

(round window niche) , (ro- technique 1 . Titration und window niche) (cochlear aqueduct) (patency),

turnover rate <sup>37)</sup> fixed <sup>32)</sup> <sup>33)</sup> <sup>34)</sup> technique 가 protocol

internal orifice

가

가 <sup>35)</sup> aminoglycoside 2004 Cohen - Kerem <sup>38)</sup> 1985 2003

가 가

American - Academy of Otolaryngology Head and Neck Surgery (AAO - HNS)가 Ménière

: Ménière

15 627

. 15

Ménière

(class A) 74.7%(67.8~  
81.5%) class B 92.7%  
(89.5~96.0%) .  
(fixed vs. titration).  
protocol . Functional  
level

Densert <sup>42)</sup> Ingelstedt <sup>43)</sup>

Ménière

가

가

가

1997

가

.<sup>44)</sup>

Densert <sup>45)</sup>

pressure cham-

ber

complex pressure

. 1997

wave가

2005 2 30

10

[1

20 mg 1

2

Ménière

pressure pulse

electro-

(2~10 )]  
(12 mg) 1 ]

[0.3 cc

cochleography

. Class A B

90%

Meniett 1999 FDA

low pressure

71%

,

11%가

generator

1,500

가

.<sup>46)</sup>

, 0~20

가

pro-

cmH<sub>2</sub>O

complex pressure wave

. Pres-

sure pulse가 1

, 40

3

tol

(session)가

5

비약물치료요법(Non-pharmacologic treatment)

2001 Odqvist <sup>48)</sup> Meniett

250 Hz,

500 Hz, 2 kHz

. 2004

Tumarkin <sup>39)</sup>

Lall <sup>40)</sup>

Ménière

Gates <sup>49)</sup>

62

4

Me-

. Montandon <sup>41)</sup>

28

niett

2

82%

2005 Thomsen <sup>47)</sup>

Meniett

20

가

가

(Stress reduction and psy-

(anoxia)

chological support)

Ménière

가

(Local overpressure treatment)

가

가

biofeedback 가  
 . 가  
 amitryptiline 가  
 Ménière 가  
 가  
 Hallpike test positional test (BPPV) 가  
 가  
 결론  
 Ménière 80%  
 가 Ménière  
 가 가 가 가

중심 단어 : Ménière . . .

REFERENCES

- 1) Torok N. *Old and new in Meniere disease. Laryngoscope* 1977;87:1870-7.
- 2) Brookes GB. *Medical management of Meniere's disease. Ear Nose Throat J* 1997;76:634-40.
- 3) Ruckenstein MJ, Rutka JA, Hawke M. *The treatment of Meniere's disease: Torok revisited. Laryngoscope* 1991;101:211-8.
- 4) Silverstein H, Smouha E, Jones R. *Natural history vs. surgery for Meniere's disease. Otolaryngol Head Neck Surg*

- 1989;100:6-16.
- 5) Furstenberg AC, Lashmet FH, Lathrop F. *Meniere's symptom complex: medical treatment. 1934. Ann Otol Rhinol Laryngol* 1992;101:20-31.
- 6) Boles R, Rice DH, Hybels R, Work WP. *Conservative management of Meniere's disease: Furstenberg regimen revisited. Ann Otol Rhinol Laryngol* 1975;84:513-7.
- 7) Jackson CG, Glasscock ME, 3rd, Davis WE, Hughes GB, Sismanis A. *Medical management of Meniere's disease. Ann Otol Rhinol Laryngol* 1981;90:142-7.
- 8) Norell I, Stahle J. *Treatment of Meniere's disease with hydrochlorothiazide. Acta Otolaryngol* 1962;54:447-56.
- 9) Klockhoff I, Lindblom U. *Meniere's disease and hydrochlorothiazide (Dichlotride)—a critical analysis of symptoms and therapeutic effects. Acta Otolaryngol* 1967;63:347-65.
- 10) van Deelen GW, Huizing EH. *Use of a diuretic (Dyazide) in the treatment of Meniere's disease. A double-blind crossover placebo-controlled study. ORL J Otorhinolaryngol Relat Spec* 1986;48:287-92.
- 11) Corvera J, Corvera G. *Long-term effect of acetazolamide and chlorthalidone on the hearing loss of Meniere's disease. Am J Otol* 1989;10:142-5.
- 12) James AL, Burton MJ. *Betahistine for Meniere's disease or syndrome. Cochrane Database Syst Rev* 2001:CD001873.
- 13) Slattery WH 3rd, Fayad JN. *Medical treatment of Meniere's disease. Otolaryngol Clin North Am* 1997;30:1027-37.
- 14) Shea JJ Jr, Ge X. *Dexamethasone perfusion of the labyrinth plus intravenous dexamethasone for Meniere's disease. Otolaryngol Clin North Am* 1996;29:353-8.
- 15) Sennaroglu L, Sennaroglu G, Gursel B, Dini FM. *Intratympanic dexamethasone, intratympanic gentamicin, and endolymphatic sac surgery for intractable vertigo in Meniere's disease. Otolaryngol Head Neck Surg* 2001;125:537-43.
- 16) Barrs DM, Keyser JS, Stallworth C, McElveen JT Jr. *Intratympanic steroid injections for intractable Meniere's disease. Laryngoscope* 2001;111:2100-4.
- 17) Sajjadi H. *Medical management of Meniere's disease. Otolaryngol Clin North Am* 2002;35:581-9.
- 18) Brookes GB, Newland AC. *Plasma exchange in the treatment of immune complex-associated sensorineural deafness. J Laryngol Otol* 1986;100:25-33.
- 19) Futaki T, Semba T, Kudo Y. *Treatment of hydropic patients by immunoglobulin with methyl B12. Am J Otol* 1988;9:131-5.
- 20) Williams HL, Maher FT, Corbin KB, Brown JR, Brown HA, Hedgecock LD. *Eriodictyol Glycoside In The Treatment Of Meniere's Disease. Ann Otol Rhinol Laryngol* 1963;72:1082-101.
- 21) Derebery MJ, Fisher LM, Iqbal Z. *Randomized double-blinded, placebo-controlled clinical trial of famciclovir for reduction of Meniere's disease symptoms. Otolaryngol Head Neck Surg* 2004;131:877-84.
- 22) Schuknecht HF. *Ablation therapy in the management of Meniere's disease. Acta Otolaryngol* 1957;47:1-42.
- 23) Beck C, Schmidt CL. *10 years of experience with intratympanically applied streptomycin (gentamycin) in the therapy of Morbus Meniere. Arch Otorhinolaryngol* 1978;221:149-52.
- 24) Ge X, Shea JJ Jr. *Scanning electron microscopic observa-*



- tion of dark cells after streptomycin perfusion of the vestibule in guinea pigs. *Scanning Microsc* 1995;9:283-8.
- 25) Park JC, Cohen GM. Vestibular ototoxicity in the chick: effects of streptomycin on equilibrium and on ampullary dark cells. *Am J Otolaryngol* 1982;3:117-27.
  - 26) Pender DJ. Gentamicin tympanoclysis: effects on the labyrinthine sensory cells. *Laryngoscope* 2003;113:343-8.
  - 27) Hone SW, Nedzelski J, Chen J. Does intratympanic gentamicin treatment for Meniere's disease cause complete vestibular ablation? *J Otolaryngol* 2000;29:83-7.
  - 28) Thomsen J, Charabi S, Tos M. Preliminary results of a new delivery system for gentamicin to the inner ear in patients with Meniere's disease. *Eur Arch Otorhinolaryngol* 2000;257:362-5.
  - 29) Kawauchi H, DeMaria TF, Lim DJ. Endotoxin permeability through the round window. *Acta Otolaryngol Suppl* 1989;457:100-15.
  - 30) Goycoolea MV, Muchow D, Schachern P. Experimental studies on round window structure: function and permeability. *Laryngoscope* 1988;98:1-20.
  - 31) Hibi T, Suzuki T, Nakashima T. Perilymphatic concentration of gentamicin administered intratympanically in guinea pigs. *Acta Otolaryngol* 2001;121:336-41.
  - 32) Hirsch BE, Kamerer DB. Role of chemical labyrinthectomy in the treatment of Meniere's disease. *Otolaryngol Clin North Am* 1997;30:1039-49.
  - 33) Kimura RS, Schuknecht HF, Ota CY. Blockage of the cochlear aqueduct. *Acta Otolaryngol* 1974;77:1-12.
  - 34) Gopen Q, Rosowski JJ, Merchant SN. Anatomy of the normal human cochlear aqueduct with functional implications. *Hear Res* 1997;107:9-22.
  - 35) Walsted A. Unpredictable hearing loss after intratympanic gentamicin treatment for vertigo. A new theory. *Acta Otolaryngol* 2001;121:42-4.
  - 36) Hoffer ME, Kopke RD, Weisskopf P, Gottshall K, Allen K, Wester D, et al. Use of the round window microcatheter in the treatment of Meniere's disease. *Laryngoscope* 2001;111:2046-9.
  - 37) McFeely WJ, Singleton GT, Rodriguez FJ, Antonelli PJ. Intratympanic gentamicin treatment for Meniere's disease. *Otolaryngol Head Neck Surg* 1998;118:589-96.
  - 38) Cohen-Kerem R, Kisilevsky V, Einarson TR, Kozier E, Koren G, Rutka JA. Intratympanic gentamicin for Meniere's disease: a meta-analysis. *Laryngoscope* 2004;114:2085-91.
  - 39) Tumarkin A. Thoughts on the treatment of labyrinthopathy. *J Laryngol Otol* 1966;80:1041-53.
  - 40) Lall M. Meniere's disease and the grommet (a survey of its therapeutic effects). *J Laryngol Otol* 1969;83:787-91.
  - 41) Montandon P, Guillemin P, Hausler R. Prevention of vertigo in Meniere's syndrome by means of transtympanic ventilation tubes. *ORL J Otorhinolaryngol Relat Spec* 1988;50:377-81.
  - 42) Densert O, Ingelstedt S, Ivarsson A, Pedersen K. Immediate restoration of basal sensorineural hearing (Mb Meniere) using a pressure chamber. *Acta Otolaryngol* 1975;80:93-100.
  - 43) Ingelstedt S, Ivarsson A, Tjernstrom O. Immediate relief of symptoms during acute attacks of Meniere's disease, using a pressure chamber. *Acta Otolaryngol* 1976;82:368-78.
  - 44) Konradsson KS, Carlborg AH, Farmer JC Jr, Carlborg BI. Perilymph pressure during hypobaric conditions--cochlear aqueduct obstructed. *Acta Otolaryngol* 1994;114:24-9.
  - 45) Densert B, Densert O, Erlandsson B, Sheppard H. Transmission of complex pressure waves through the perilymphatic fluid in cats. *Acta Otolaryngol* 1986;102:403-9.
  - 46) Densert B, Densert O, Arlinger S, Sass K, Odkvist L. Immediate effects of middle ear pressure changes on the electrocochleographic recordings in patients with Meniere's disease: a clinical placebo-controlled study. *Am J Otol* 1997;18:726-33.
  - 47) Thomsen J, Sass K, Odkvist L, Arlinger S. Local overpressure treatment reduces vestibular symptoms in patients with Meniere's disease: a clinical, randomized, multicenter, double-blind, placebo-controlled study. *Otol Neurotol* 2005;26:68-73.
  - 48) Odkvist L. Pressure treatment versus gentamicin for Meniere's disease. *Acta Otolaryngol* 2001;121:266-8.
  - 49) Gates GA, Green JD Jr, Tucci DL, Telian SA. The effects of transtympanic micropressure treatment in people with unilateral Meniere's disease. *Arch Otolaryngol Head Neck Surg* 2004;130:718-25.