

## Supplementary Online Content

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**eTable 1.** The Inclusion and Exclusion Diseases and Their *ICD-9* Codes in this Study

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**eTable 4.** Adjusted Hazard Ratios (aHRs) for Individual Cochlear Disorders Associated With Migraine if Migraine Cases Were Defined as the Presence of  $\geq 2$  *ICD-9* codes 346.01, 346.10, 346.90 During the Period 1996-2012

This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1.** The Inclusion and Exclusion Diseases and Their *ICD-9* Codes in this Study

	<u>Disease</u>	<u>ICD-9 codes</u>
<u>Inclusion</u>	<u>Migraine</u>	<u>346.01, 346.10, 346.90</u>
<u>Exclusion</u>	<u>Schizophrenia</u>	<u>295.90</u>
	<u>Benign brain tumor</u>	<u>225, 227.3</u>
	<u>Malignant brain tumor</u>	<u>191,192</u>
	<u>Ischemic cerebrovascular diseases</u> <u>and</u> <u>basilar artery syndrome</u>	<u>433.01, 433.10, 433.11, 433.21,</u> <u>433.90, 434, 435.0, 435.1, 435.3,</u> <u>435.8, 435.9, 436, 437.0, 437.8,</u> <u>437.9, 438.89, 438.9</u> <u>432.9, 432.1, 431, 430, 852.00,</u> <u>852.40, 852.46</u>
	<u>Hemorrhagic stroke</u>	<u>800–804, 850–854, 873, 310.2,</u> <u>907</u>
	<u>Brain concussion or head trauma</u>	<u>345.9, 345.71, 780.39, 345.40,</u> <u>345.41, 345.11, 345.10</u>
	<u>Epilepsy/convulsions</u>	<u>747.81, 437.3, 442.81, 442.89</u>
	<u>Aneurysm or arteriovascular</u> <u>malformation of brain and neck</u>	<u>348.1</u>
	<u>Anoxic brain damage</u>	<u>324, 323.9</u>
	<u>Brain abscess/encephalitis</u>	<u>225.1</u>
	<u>Vestibular schwannoma</u>	<u>389.0</u>
	<u>Conductive hearing loss</u>	<u>387.9</u>
	<u>Otosclerosis</u>	<u>388.3, 388.30, 388.31, 388.32</u>
	<u>Tinnitus</u>	<u>388.12, 388.40, 389.1, 389.2,</u> <u>389.7,</u>
	<u>sensorineural hearing impairment</u>	<u>389.8, 389.9, 389</u> <u>388.2</u>
	<u>sudden deafness</u>	

**eTable 2.** Adjusted Hazard Ratios (aHRs) for Individual Cochlear Disorders (Tinnitus, Sensorineural Hearing Impairment, and Sudden Deafness) Associated With Migraine

aHR (95% CI, <i>P</i> Value)	Tinnitus	Sensorineural hearing impairment	Sudden deafness
Migraine (yes/no)	3.30 (2.17-5.00, <i>P</i> <.001)	1.03 (0.17-6.41, <i>P</i> =.97)	1.22 (0.53-2.83, <i>P</i> =.65)

Abbreviation: CI, confidence interval. Adjusted for all covariates.

**eTable 3.** Adjusted Hazard Ratios (aHRs) for Combined Cochlear Disorders Associated With Migraine if Migraine Cases Were Defined as the Presence of  $\geq 2$  ICD-9 codes 346.01, 346.10, 346.90 During the Period 1996-2012

Variable	aHR	95% CI	P Value
Migraine (yes/no)	2.68	2.13-3.37	<.001
Sex (men/women)	0.78	0.61-1.00	.05
Age (per year)	1.03	1.03-1.04	<.001
Comorbidity (yes/no)			
Sleep disorders		Drop out**	
Heart diseases	0.67	0.09-4.86	.70
Hypertension		Drop out**	
Diabetes		Drop out**	
Hyperlipidemia		Drop out**	
Chronic kidney disease		Drop out**	
Chronic hepatitis		Drop out**	
Anxiety		Drop out**	
Depression		Drop out**	
COPD		Drop out**	
Pregnancy		Drop out**	
Menopause		Drop out**	
Oral contraceptives	1.56	0.95-2.58	.08
Geographic region			
Northern	1	Reference	
Central	1.07	0.84-1.36	.59
Eastern	0.46	0.19-1.12	.09
Southern	1.19	0.96-1.46	.11
Urbanization level			
Urban	1	Reference	
Suburban	1.04	0.85-1.27	.73
Rural	1.02	0.78-1.34	.88
Enrollee category			
1	1	Reference	
2	0.51	0.33-0.78	.02
3	1.14	0.93-1.40	.21
4	1.00	0.79-1.27	.97

Abbreviation: CI, confidence interval; COPD, chronic obstructive pulmonary disease. Adjusted for all covariates.

\*\* It was correlated with another independent factor (collinearity) during regression analysis.

**eTable 4.** Adjusted Hazard Ratios (aHRs) for Individual Cochlear Disorders Associated With Migraine if Migraine Cases Were Defined as the Presence of  $\geq 2$  ICD-9 codes 346.01, 346.10, 346.90 During the Period 1996-2012

aHR (95% CI, <i>P</i> Value)	Tinnitus	Sensorineural hearing impairment	Sudden deafness
Migraine (yes/no)	3.00 (2.32-3.87, <i>P</i> <.001)	1.60 (0.92-2.78, <i>P</i> =.09)	3.51 (1.46-8.44, <i>P</i> =.005)

Abbreviation: CI, confidence interval. Adjusted for all covariates.