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Prevalence of Vestibulocochlear Diseases in 4,825 Patients

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Abstract: A study of the prevalence of vestibulocochlear disorders in 4,825 patients showed that these disorders occurred during middle age and mostly affected women. The most frequent pathologies are vascular labyrinthitis, emotional disturbance, and the cervical syndrome. The study also demonstrated that each disease has a preferential age group, which varies according to the gender.

Keywords: cochlear; diseases; prevalence; vestibular

The doctor's answer to the question "Does my illness occur frequently?" is based on the doctor's professional experience and, in many cases, reflects the reality of only his or her background, which may not be applicable to all cases. Too little research into the prevalence of labyrinthine disorders has been conducted.

It is well-known fact that the incidence of labyrinthine disorders, especially in older people, is high. Colledge et al. [1] cite the incidence in the aged as 30%.

Conraux and Gentine [2] believe that 7% of neurootological pathologies are attributable to Ménière's disease, whereas Toupet [3] estimates that this etiology accounts for 5% of such pathological processes. Paroxysmal positional vertigo, which most researchers believe is the most common pathological finding, was identified by Mizukoshi et al. [4] in 13–18% of the patients suffering from vestibulocochlear disorders and by Hughes and Proctor [5] in 24%. Nakashima et al. [6] found that sudden deafness occurred in 1% of the cases. Grad and Baloh [7] admitted that vascular alterations take place very frequently in vestibular disorders. Nakashima et al. [8] found this to be true in 28.8% and Gracia-Naya et al. [9] in 11.7% of their patients.

Because references in the literature are so few and as some of the reports are contradictory, we undertook to evaluate the prevalence of different pathological processes in patients suffering from vestibulocochlear disorders.

METHOD

At the Otorhinolaryngological Department of the Faculty of Medical Sciences, UNICAMP, and our private clinic, 4,825 patients who complained of vestibulocochlear disorders and were treated during the 3-year period from March 1994 to February 1997. A 6-month respite was allowed between the last evaluation and the compilation of the research results so that the diagnoses could be confirmed, as there had been a probable case of sudden deafness that recurred 4 months later, accompanied by a crisis of vertigo that was eventually identified as Ménière's disease and another case of vestibular neuritis that, months later, after a relapse, proved to be multiple sclerosis.

All the patients underwent basic tests for a complete neurootological evaluation. Some also underwent evoked-potentials tests (BERA). Laboratory and radiological examinations were conducted so as to reach a final diagnosis. The results were evaluated on the basis of the diagnoses and patient age and gender.

RESULTS AND DISCUSSION

Table 1 is an analysis of the origin of the patients. It reveals that few of the patients knew that equilibrium disorders are treated by otoneurologists and that many of the patients sought the advice of a cardiologist rather than a neurologist. The very small number of children

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Table 1. Origin of Patients

Origin	Number	Percentage
Spontaneous	1,496	31.0
Otohinolaryngologist's referral	2,132	44.2
Clinical referral	514	10.7
Neurologist's referral	452	9.4
Others' referral	231	4.7
No.	4,825	100.0

referred by pediatricians demonstrates that there is lack of information regarding neurootological disorders in this area.

Table 2 shows that vestibulocochlear disorders occur more frequently in women, the female-male ratio being 2:1. Contrary to general opinion and to the reports published by Colledge et al. [1], these disorders do not affect only the aged but occur more frequently in people in their forties and fifties in both men and women. Vestibulocochlear disorders often incapacitate an individual during his or her most productive phase and, as a result, impose serious social problems.

In the evaluation of various pathologies, only 95 main cases (1.96%) were found. However, not computed were cases of vestibular migraine, which, despite being main, can be considered peripheral as it is extremely benign. In children, the classic pulsating headache is not present in most cases of vestibular migraine; rather, the most frequent symptoms are motion sickness and classic vertigo.

An analysis of Table 3 shows that the most frequent etiologies of labyrinthine disorders are vascular. High blood pressure and cardiopathies were found in 80% of cases. This is in accordance with the findings of Grad and Baloh [7].

Patients, whose examination results were normal, suffer equilibrium disorders due to emotional and psychological disturbances. The high number of these cases indicates their importance.

Table 2. Distribution of Age According to Gender

	Women		Men		Total	
Age	No.	%	No.	%	No.	%
<10	32	0.66	22	0.46	54	1.12
10–20	104	2.16	68	1.41	172	3.56
20–30	258	5.35	128	2.65	386	8.00
30–40	699	14.49	370	7.67	1,069	22.16
40–50	792	**16.41**	460	**9.53**	1,252	**25.95**
50–60	563	11.67	309	6.40	872	18.07
60–70	424	8.79	228	4.73	652	13.51
> 70	252	5.22	116	2.40	368	7.63
Total	3,124	64.75	1,701	35.25	4,825	100.00

Table 3. Prevalence of Labyrinthine Disorders

Disorder	No.	%
Vascular etiology	900	18.65
Normal	843	17.47
Cervical syndrome	825	17.10
Vestibular migraine	580	12.02
Metabolic etiology	327	6.78
Ménière's disease	243	5.04
Unknown	196	4.06
Traumas	137	2.84
Neuritis	133	2.76
Paroxysmal positional vertigo	96	1.99
Prebyvestibular etiology	85	1.76
Sudden deafness	74	1.53
Otosclerosis	74	1.53
Ototoxicosis	50	1.04
Other etiologies	42	0.87
Conductive disturbance	40	0.83
Degenerative condition	33	0.68
Central disorder	31	0.64
Trunk disorder	22	0.46
TMA	18	0.37
VBI	11	0.23
Cerebellar etiology	10	0.21
Carotid disorder	10	0.21
Acoustic Neuroma	9	0.19
Other etiologies	36	0.75
Total	4,825	100.00

The incidence of cervical syndrome is rising owing to the prevalence of professions such as computer programming and typing. In addition, youngsters who lie back in front of the television and maintain the neck in a bent position for many hours invite this syndrome.

Changes in sugar metabolism (diabetes and reactive hyperinsulinemia) are responsible for more than 80% of metabolic labyrinthine disorders. Rare cases are seen of increased prolactin, parathyroid disorders, and the like. Diagnosis in chronic renal cases is very difficult as most of these patients also have important ototoxic symptoms.

Allergy to food in the case of labyrinthine hydrops is approximately 20%, and respiratory allergies are rare. Other factors have a minimal effect. Most frequently, the cause of labyrinthine hydrops is idiopathic. Classic psychological alterations of this pathology (e.g., a tense patient who wants to decide everything at once and is impatient) were present in 95% of cases. Eighty-six percent of patients (n = 209) were unilaterally affected.

Most of the incomplete diagnoses were cases referred by other doctors, but some were our patients. All required radiological study or blood tests but failed to show up for them. In some cases, the diagnosis was in-

Table 4. Prevalence of Disorders in Patients Aged Up to 10 Years

Disorder	Female	%	Male	%	Total	%
Migraine	22	68.75	6	27.27	28	51.85
Neuritis	2	6.25	6	27.27	8	14.81
Normal	2	6.25	4	18.18	6	11.11
Paroxysmal positional vertigo	3	9.38	2	9.09	5	9.26
Unknown	0	0.00	3	13.64	3	5.56
Truncus	2	6.25	0	0.00	2	3.70
Netabolic disorder	0	0.00	1	4.55	1	1.85
Conductive disorder	1	3.13	0	0	1	1.85
Total	32	100	22	100	54	100

complete because the case history was incompatible with the neurootological findings or the examinations did not confirm the suspicion (e.g., normal radiology in the case of a suspicion of neurinoma).

A great majority of the cases of vestibulocochlear disorders caused by trauma could be attributed to loud noise (industries, dance halls, etc.) and traffic accidents.

In most cases of vestibular neuritis, it was not possible to correlate equilibrium disorders with previous respiratory infections. However, it was noted that in 93 cases (73%), the left side was compromised, and only 1 case was affected bilaterally.

Most authors have cited paroxysmal positional vertigo as the most frequent vestibular pathological process but, in our study, we found it to be rare. These data coincide with the studies done by Hughes and Proctor [5], who diagnosed 187 cases (24%) of positional vertigo in 781 patients who suffered from vertigo but, on review, concluded that only 36 cases (4.6%) were true canaliculithiasis, whereas the remaining cases were vascular disorders and even labyrinthine hydrops.

Although the preceding sample is smaller, it can be seen that vestibular migraine is prevalent, which is in accordance with data provided by Toupet [10]. In women, this disorder is surprisingly highly prevalent, whereas in men it occurs with a frequency similar to that of vestibular neuritis.

Tables 4–6 show that vestibular migraine is the most frequent pathological process. However, the importance of emotional disorders can be seen in the group of patients aged 10–20 years who are affected by vestibular migraine. Also noted in this group is a high incidence of Ménière's disease, which, according to most authors, is thought to occur rarely before the age of 20 years.

Table 6 reveals that cases of emotional disorders are high also among patients aged 20–30 years. Table 7 shows that the largest number of cases of emotional disorders are in the 30- to 40-year age group and that, in this group, such disorders are more frequent than are cases of vestibular migraine. A high incidence of cervical syndrome in this group also is noted.

In the 40- to 50-year age group (Table 8), the incidence of cervical syndrome is highest, whereas the incidence of normal patients and cases of vestibular migraine is far less. Vascular disorders now attain an important level of prevalence.

Table 9 shows that vascular labyrinthitis is more frequent in patients aged 50–60 years, cervical syndrome being the next most prevalent disorder. In this group, too, many patients suffer from emotional disorders.

Table 5. Prevalence of Disorders in Patients Between the Ages of 10 and 20 Years

Disorder	Female	%	Male	%	Total	%
Migraine	51	49.04	31	45.59	82	47.67
Normal	21	20.19	15	22.06	36	20.93
Ménière's disease	8	7.69	3	4.41	11	6.40
Metabolic disorder	7	6.73	2	2.94	9	5.23
Neuritis	3	2.88	4	5.88	7	4.07
Paroxysmal positional vertigo	4	3.85	0	0.00	4	2.33
Congenital defect	2	1.92	1	1.47	3	1.74
Degenerative condition	1	0.96	2	2.94	3	1.74
Unknown	0	0.00	3	4.41	3	1.74
Other disorders	7	6.73	7	10.29	14	8.14
Total	104	100	68	100	172	100

Table 6. Prevalence of Disorders in Patients Between the Ages of 20 and 30 Years

Disorder	Female	%	Male	%	Total	%
Migraine	108	41.86	15	11.72	123	31.87
Normal	60	23.26	48	37.50	108	27.98
Neuritis	15	5.81	9	7.03	24	6.22
Metabolic disorder	16	6.20	4	3.13	20	5.18
Ménière's disease	11	4.26	8	6.25	19	4.92
Unknown	10	3.88	10	7.81	20	5.18
Cervical syndrome	11	4.26	3	2.34	14	3.63
Trauma	1	0.39	11	8.59	12	3.11
Degenerative condition	3	1.16	5	3.91	8	2.07
Sudden deafness	4	1.55	1	0.78	6	1.55
TMA	4	1.55	1	0.78	5	1.30
Vascular disorder	3	1.16	2	1.56	5	1.30
Otosclerosis	1	0.39	5	3.91	5	1.30
Paroxysmal positional vertigo	2	0.78	3	2.34	4	1.04
Other disorders	9	3.49	3	2.34	13	2.07
Total	258	100	128	100	386	100

Table 10 shows that the incidence of circulatory disorders among 60- to 70-year-olds is very high: 40% vertigo, followed in incidence by the cervical syndrome.

The expected high incidence of vascular labyrinthitis among patients older than 70 was confirmed in our study (Table 11). Fifty-five percent of patients in this age group complained of cochlear vestibulares. The incidence of cervical syndrome also was high, but the incidence of presbyvestibular disorders was outstanding.

As expected, vascular labyrinthitis was revealed as a pathological process of the aged and, regardless of gender, occurs most frequently in the patient's sixth decade (Table 12).

Table 13 demonstrates that the incidence of emotional disorders is highest among patients in their thirties. This reflects the patients' lack of confidence felt at this age, the difficulty in securing a job or in rising professionally. According to Stein et al. [11], psychological disorders (e.g., panic, phobias) are rare.

The highest incidence of cervical syndrome (Table 14) in patients of either gender is during the fourth decade, when years of bad posture begin taking their toll.

In Table 15, it can be seen that vestibular migraines affect men more intensely between the ages of 10 and 20 years, which could be due to emotional instability during puberty, whereas women are more affected by vestibular migraines during their thirties.

The incidence of metabolic labyrinthitis (Table 16) is highest in the 30- to 50-year age group. The cause very often (75% of cases) is an alteration in the metabolism of sugar (diabetes and reactive hyperinsulinemia).

The highest incidence of Ménière's disease (labyrin-

Table 7. Prevalence of Disorders in Patients Between the Ages of 30 and 40 Years

Disorder	Female	%	Male	%	Total	%
Normal	170	24.32	109	29.46	279	26.10
Migraine	156	22.32	24	6.49	180	16.84
Cervical syndrome	120	17.17	46	12.43	166	15.53
Metabolic disorder	56	8.01	33	8.92	89	8.33
Ménière's disease	36	5.15	28	7.57	64	5.99
Neuritis	26	3.72	16	4.32	42	3.93
Vascular disorder	20	2.86	22	5.95	42	3.93
Unknown	19	2.72	21	5.68	40	3.74
Trauma	12	1.72	25	6.76	37	3.46
Otosclerosis	15	2.15	9	2.43	24	2.25
Sudden deafness	13	1.86	10	2.70	23	2.15
Paroxysmal positional vertigo	15	2.15	5	1.35	20	1.87
Ototoxicosis	7	1.00	4	1.08	11	1.03
Other disorders	34	4.86	18	4.86	52	4.86
Total	699	100	370	100	1,069	100

Table 8. Prevalence of Disorders in Patients Between the Ages of 40 and 50 Years

Disorder	Female	%	Male	%	Total	%
Cervical syndrome	204	25.76	76	16.52	280	22.36
Normal	148	18.69	95	20.65	243	19.41
Migraine	112	14.14	16	3.48	128	10.22
Vascular disorder	79	9.97	80	17.39	159	12.70
Metabolic disorder	61	7.70	28	6.09	89	7.11
Ménière's disease	40	5.05	42	9.13	82	6.55
Unknown	27	3.41	26	5.65	53	4.23
Neuritis	15	1.89	24	5.22	39	3.12
Trauma	9	1.14	30	6.52	39	3.12
Otosclerosis	20	2.53	8	1.74	28	2.24
Paroxysmal positional vertigo	18	2.27	8	1.74	26	2.08
Sudden deafness	13	1.64	5	1.09	18	1.44
Other disorders	46	5.81	22	4.78	68	5.43
Total	792	100	460	100	1,252	100

Table 9. Prevalence of Disorders in Patients Between the Ages of 50 and 60 Years

Disorder	Female	%	Male	%	Total	%
Vascular disorder	149	26.47	82	26.54	231	26.49
Cervical syndrome	162	18.77	53	17.15	215	24.66
Normal	64	11.37	34	11.00	98	11.24
Metabolic disorder	39	6.93	21	6.80	60	6.88
Unknown	20	3.55	18	5.83	38	4.36
Ménière's disease	19	3.37	18	5.83	37	4.24
Migraine	24	4.26	6	1.94	30	3.44
Presbyvestibular disorder	12	2.13	22	7.12	34	3.90
Paroxysmal positional vertigo	17	3.02	5	1.62	22	2.52
Trauma	8	1.42	19	6.15	27	3.10
Otosclerosis	8	1.42	3	0.97	11	1.26
Ototoxicosis	6	1.07	3	0.97	9	1.03
Other disorders	35	6.22	25	8.09	60	6.88
Total	563	100	309	100	872	100

Table 10. Prevalence of Disorders in Patients Between the Ages of 60 and 70 Years

Disorder	Female	%	Male	%	Total	%
Vascular disorder	169	39.86	91	39.91	260	39.88
Cervical syndrome	91	21.46	29	12.72	120	18.40
Normal	38	8.96	14	6.14	52	7.98
Metabolic disorder	30	7.08	11	4.82	41	6.29
Unknown	17	4.01	10	4.39	27	4.14
Ménière's disease	15	3.54	9	3.95	24	3.68
Presbyvestibular disorder	8	1.89	18	7.89	26	3.99
Trauma	6	1.42	12	5.26	18	2.76
Sudden deafness	8	1.89	4	1.75	12	1.84
Paroxysmal positional vertigo	7	1.65	5	2.19	12	1.84
Other disorders	35	8.25	25	10.96	60	9.20
Total	424	100	228	100	652	100

Table 11. Prevalence of Disorders in Patients Older Than 70 Years

Disorder	Female	%	Male	%	Total	%
Vascular disorder	146	57.94	57	49.14	203	55.16
Cervical syndrome	26	10.32	4	3.45	30	8.15
Presbyvestibular disorder	11	4.37	14	12.07	25	6.79
Normal	16	6.35	5	4.31	21	5.71
Metabolic disorder	14	5.56	4	3.45	18	4.89
Unknown	7	2.78	5	4.31	12	3.26
Ototoxicosis	4	1.59	8	6.90	12	3.26
VBI	4	1.59	3	2.59	7	1.90
Other disorder	24	9.52	16	13.79	40	10.87
Total	252	100	116	100	368	100

thine hydrops) in either gender is during the fourth decade of life, as shown in Table 17.

Table 18 shows that the highest incidence of vestibular neuritis is during a person's thirties. This is contrary to the findings by Sekitani et al. [12], who concluded that the highest incidence was during the fourth decade of life. In our study, Sekitani's findings were upheld only among male patients. In 11% of the cases, an infection of the upper respiratory tract was confirmed a few days before vertigo was felt. This corroborates the findings of Hara et al. [13].

As shown by Table 19, as well as by Baloh and Honrubia [14], paroxysmal positional vertigo is not benign and could last for years. Its highest incidence in women

Table 12. Distribution of Vascular Labyrinthitis According to Age and Gender

	Total		Female		Male	
	Total	%	Total	%	Total	%
<10	0	0.00	0	0.00	0	0.00
10–20	0	0.00	0	0.00	0	0.00
20–30	5	0.56	3	0.53	2	0.60
30–40	42	4.67	20	3.53	22	6.59
40–50	159	17.67	79	13.96	80	23.95
50–60	231	25.67	149	26.33	82	24.55
60–70	260	**28.89**	169	**29.86**	91	27.25
>70	203	22.56	146	25.80	57	17.07
	900	100	566	100	334	100

Table 13. Distribution of Normal Patients According to Age and Gender

	Total		Female		Male	
	Total	%	Total	%	Total	%
<10	6	0.74	2	0.40	4	1.28
10–20	7	0.86	3	0.60	4	1.28
20–30	108	13.27	60	11.98	48	15.34
30–40	279	**34.28**	170	**33.93**	109	**34.82**
40–50	243	29.85	148	29.54	95	30.35
50–60	98	12.04	64	12.77	34	10.86
60–70	52	6.39	38	7.58	14	4.47
>70	21	2.58	16	3.19	5	1.60
Total	814	100	501	100	313	100

Table 14. Distribution of Cervical Syndrome According to Age and Gender

	Total		Female		Male	
	Total	%	Total	%	Total	%
<10	0	0.00	0	0.00	0	0.00
10–20	0	0.00	0	0.00	0	0.00
20–30	14	1.70	11	1.79	3	1.42
30–40	166	20.12	120	19.54	46	21.80
40–50	280	**33.94**	204	**33.22**	76	**36.02**
50–60	215	26.06	162	26.38	53	25.12
60–70	120	14.55	91	14.82	29	13.74
>70	30	3.64	26	4.23	4	1.90
Total	825	100	614	100	211	100

Table 15. Distribution of Vestibular Migraine According to Age and Gender

	Total		Female		Male	
	Total	%	Total	%	Total	%
<10	28	4.83	22	4.56	6	6.12
10–20	82	14.14	51	10.58	31	**31.63**
20–30	123	21.21	108	22.41	15	15.31
30–40	180	**31.03**	156	**32.37**	24	24.49
40–50	128	22.07	112	23.24	16	16.33
50–60	30	5.17	24	4.98	6	6.12
60–70	8	1.38	8	1.66	0	0.00
>70	1	0.17	1	0.21	0	0.00
Total	580	100	482	100	98	100

Table 16. Distribution of Metabolic Labyrinthitis According to Age and Gender

	Total		Female		Male	
	Total	**%**	**Total**	**%**	**Total**	**%**
<10	1	0.31	1	0.45	0	0.00
10–20	9	2.75	7	3.13	2	1.94
20–30	20	6.12	16	7.14	4	3.88
30–40	89	**27.22**	56	25.00	33	**32.04**
40–50	89	**27.22**	61	**27.23**	28	27.18
50–60	60	18.35	39	17.41	21	20.39
60–70	41	12.54	30	13.39	11	10.68
>70	18	5.50	14	6.25	4	3.88
Total	327	100	224	100	103	100

Table 18. Distribution of Vestibular Neuritis According to Age and Gender

	Total		Female		Male	
	Total	**%**	**Total**	**%**	**Total**	**%**
<10	8	6.02	2	3.03	6	8.96
10–20	7	5.26	3	4.55	4	5.97
20–30	24	18.05	15	22.73	9	13.43
30–40	42	**31.58**	26	**39.39**	16	23.88
40–50	39	29.32	15	22.73	24	**35.82**
50–60	8	6.02	3	4.55	5	7.46
60–70	3	2.26	2	3.03	1	1.49
>70	2	1.50	0	0.00	2	2.99
Total	133	100	66	100	67	100

is during their forties, which is close to the figure (50 years) found by Baloh and Honrubia. Among men, the highest incidence is in the third decade. These data differ greatly from most reports by other authors, who indicate that this is a pathological process generally found in the aged [15].

Traumatic labyrinthitis affects men more intensely during their thirties than in any other period (Table 20), traffic accidents or even job accidents being the most likely etiology. In contrast, women suffer traumatic labyrinthitis more often after the age of 40, generally as a result of physical aggression suffered in the home. In the case of young people, the most important cause is the noise in night clubs.

Table 21 demonstrates that the highest incidence of sudden deafness, with or without vertigo, is during a person's thirties, confirming the results obtained by Nakashima et al. [6]. The audiometric tests performed on young people indicated virotic lesions, whereas in the aged, vascular lesions were more common. However, in the group in which the incidence was highest, it was not possible in most cases to obtain a differential diagnosis.

Variations of these data can be obtained by considering such other factors as the region, climate, location of the clinic (e.g., private or attached to a large hospital), and the medical habits of each country.

CONCLUSION

Our findings lead us to the following conclusions:

1. Women are more affected than men by vestibulocochlear disorders, the female-male ratio being 2:1.
2. The 40- to 50-year age group is most affected, followed by those between the ages of 30 and 40 years, proving that these disorders do not affect only the aged.
3. The most frequent pathological processes, in descending order, are vascular labyrinthitis, psychological and emotional disturbance, cervical syn-

Table 17. Distribution of Ménière's Disease According to Age and Gender

	Total		Female		Male	
	Total	**%**	**Total**	**%**	**Total**	**%**
<10	0	0.00	0	0.00	0	0.00
10–20	11	4.53	8	5.97	3	2.75
20–30	19	7.82	11	8.21	8	7.34
30–40	64	26.34	36	26.87	28	25.69
40–50	82	**33.74**	40	**29.85**	42	**38.53**
50–60	37	15.23	19	14.18	18	16.51
60–70	24	9.88	15	11.19	9	8.26
>70	6	2.47	5	3.73	1	0.92
Total	243	100	134	100	109	100

Table 19. Distribution of Paroxysmal Positional Vertigo According to Age and Gender

	Total		Female		Male	
	Total	**%**	**Total**	**%**	**Total**	**%**
<10	5	5.05	3	4.41	2	6.45
10–20	4	4.04	4	5.88	0	0.00
20–30	4	4.04	3	4.41	1	3.23
30–40	23	23.23	13	19.12	10	**32.26**
40–50	26	**26.26**	18	**26.47**	8	25.81
50–60	22	22.22	17	25.00	5	16.13
60–70	12	12.12	7	10.29	5	16.13
>70	3	3.03	3	4.41	0	0.00
Total	99	100	68	100	31	100

Table 20. Distribution of Traumatic Labyrinthitis According to Age and Gender

	Total		Female		Male	
	Total	**%**	**Total**	**%**	**Total**	**%**
<10	0	0.00	—	0.00	0	0.00
10–20	1	0.73	1	2.27	0	0.00
20–30	12	8.76	1	2.27	11	11.83
30–40	37	27.01	12	27.27	25	**26.88**
40–50	39	**28.47**	15	**34.09**	24	25.81
50–60	27	19.71	8	18.18	19	20.43
60–70	18	13.14	6	13.64	12	12.90
>70	3	2.19	1	2.27	2	2.15
Total	137	100	44	100	93	100

Table 21. Distribution of Sudden Deafness or Vertigo According to Age and Gender

	Total		Female		Male	
	Total	**%**	**Total**	**%**	**Total**	**%**
<10	0	0.00	0	0.00	0	0.00
10–20	2	2.70	0	0.00	2	6.25
20–30	6	8.11	1	2.38	5	15.63
30–40	23	**31.08**	13	**30.95**	10	**31.25**
40–50	18	24.32	13	**30.95**	5	15.63
50–60	9	12.16	5	11.90	4	12.50
60–70	12	16.22	8	19.05	4	12.50
>70	4	5.41	2	4.76	2	6.25
Total	74	100	42	100	32	100

drome, vestibular migraine, metabolic labyrinthitis, and Ménière's disease.

4. Each disease affects a particular age group, which could change according to the patient's gender.

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