

Otologic disorders in patients with benign paroxysmal positional vertigo (BPPV): A systematic review

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Objective

To systematically investigate the co-occurrence of otological disorders in patients with benign paroxysmal positional vertigo (BPPV).

Methods

Research type: Systematic review

Search databases:

- PubMed
- Web of Science

Scope:

- Co-occurrence of otological disorders in BPPV patients

Inclusion criteria:

- Detailed information is given in Table 1.

Article types:

- BPPV studies reporting co-occurring otological disorders
- Otological disorder studies reporting co-occurring BPPV

Analysis:

- Frequency of otological disorders in BPPV patients in both article types

Results

Studies retrieved: 2385

Articles included: 67

Otological disorders with co-occurring BPPV: (Table 2)

- 44 articles
- 11.5% diagnosed with BPPV (1088/9421)

Results- continued

BPPV patients with co-occurring otological disorders: (Table 3)

- 23 articles
- 9% had otological disorders (1234/13,639)

Most frequently reported co-occurring otologic disorders:

- Menière's Disease
- Acute unilateral vestibulopathy/vestibular neuritis
- Sudden sensorineural hearing loss
- Labyrinthitis
- Post-surgical otologic complications

Table 1: In- and exclusion criteria

	Inclusion criteria	Exclusion criteria
Study design	<ul style="list-style-type: none"> Randomized controlled trials Cohort studies Case reports Cross sectional studies Case control studies <p>Language: English</p>	<ul style="list-style-type: none"> Systematic reviews Meta-analyses Literature Review Editorials Conference proceedings Letter to editors No text Validity and reliability studies Other languages
Population	<ul style="list-style-type: none"> Age: ≥ 18 years old - Diagnosed by BPPV 	<ul style="list-style-type: none"> Age: < 18 years old Healthy subjects Animal Studies Model studies Temporal bone studies
Outcome	<ul style="list-style-type: none"> Otologic disorders Acute unilateral vestibulopathy/Vestibular neuritis Labyrinthitis Menière's disease Iatrogenic (Post-surgery complications) Benign recurrent vertigo Congenital Auto-immune disease Peripheral vestibular disorders 	<ul style="list-style-type: none"> Central vestibular disorders Neurologic disorders Stroke Posterior circulation Cerebellar disorders Functional vestibular disorders

Table 2: Percentage of co-occurring BPPV in otological disorders

	Patients with BPPV	Total number of patients	Percentage (%)	Number of studies
Otologic surgery	94	1869	5.02	9
Labyrinthitis	65	1263	5.14	2
Acute unilateral vestibulopathy/ Vestibular neuritis	176	1703	10.33	10
Menière's Disease	267	2427	11.01	9
Sudden sensorineural hearing loss	370	5931	6.23	10
Others	116	1406	8.25	7
Total	1088	9421	11.54	44

Table 3: Percentage of co-occurring otological disorders in BPPV

	Patients with otological disorders	Total number of patients	Percentage (%)	Number of studies
Otologic surgery	25	532	4.69	2
Labyrinthitis	41	1620	2.53	5
Acute unilateral vestibulopathy/ Vestibular neuritis	411	8478	4.84	13
Menière's Disease	532	11.284	4.71	17
Sudden sensorineural hearing loss	107	2669	4.01	5
Others	119	8435	2.19	11
Total	1234	13.639	9.05	23
Idiopathic (Primary BPPV)	7830	10.792	72.55	22

Conclusion

- Otological disorders frequently co-occur in BPPV patients and vice versa.
- These findings may help understand the diverse etiological factors underlying BPPV.