

Online Supplementary Material

Maarsingh OR, Dros J, Schellevis FG, et al. Causes of persistent dizziness in elderly patients in primary care: a diagnostic study based on panel diagnosis. *Ann Fam Med.* 2010;8(3):196-205.

<http://www.annfammed.org/cgi/content/full/8/3/196/DC1>

Supplemental Appendix 1. Search Strategy Used in Electronic Databases for Identifying Dizzy Patients Family Physicians Had Failed to Invite (15 Search Terms and 3 ICPC Codes)

Terms and Codes	Symptom in Dutch	English Translation	Dizziness Subtype	Type of Sensation
Search terms				
1. draai*	-draaiurig	-giddy/rotational sensation	I. Vertigo	A feeling that one or one's surroundings are moving
2. vertig*	-vertigo	-vertigo		
3. zweve*	-zweverig	-giddy		
4. collab*	-collaberen	-collapsing	II. Presyncope	A lightheaded, faint feeling, as though one were about to pass out
5. collap*	-collaps	-collapse		
6. flauw*	-flauwte	-faint feeling		
7. licht in	-licht in het hoofd	-lightheadedness		
8. onwel*	-onwelwording	-becoming unwell		
9. zwart voor	-zwart voor de ogen	-everything turning black		
10. evenwicht*	-evenwichtsstoornis	-loss of equilibrium	III. Disequilibrium	A sense of unsteadiness that is (1) primarily felt in the lower extremities, (2) most prominent when standing or walking, and (3) relieved by sitting or lying down
11. onvast*	-onvast (ter been)	-instability		
12. valnei*	-valneiging	-tendency to fall		
13. wankel*	-wankel (ter been)	-to be unsteady on one's legs		
14. dizz*	-dizzy	-dizzy	IV. No subtype	Dizziness not specified
15. duizel*	-duizeligheid	-dizziness		

ICPC codes

1. A06 Fainting/syncope
2. H82 Vertiginous syndrome
3. N17 Vertigo/dizziness

ICPC = *International Classification of Primary Care.*

*Truncated search term.

Supplemental Appendix 2. Diagnostic Criteria During the Evaluation of Dizzy Elderly Patients

System	Diagnostic Criteria
Cardiovascular system	
Bradycardia	< 60 beats per minute, and < 50 beats per minute when taking β -blockers
Tachycardia	> 100 beats per minute
Elevated blood pressure	Systolic blood pressure 160 mm Hg after 5 min in supine position
Positive orthostatic hypotension test	A 20-mm Hg decrease in systolic blood pressure, or a systolic blood pressure below 90 mm Hg, measured at any of the given time periods (after 1, 2, 3, 4, or 5 minutes in standing position)
Explanatory abnormalities during ECG or CER	Bradycardia, tachycardia, atrial fibrillation/flutter, supraventricular tachycardia, ventricular tachycardia, ventricular fibrillation, torsades de pointes, brady-tachy syndrome, or a 3rd-degree atrioventricular block
Locomotor system	
Abnormal tandem gait	A tandem gait score of 40 seconds or more ^a
Abnormal timed up-and-go test	A timed up-and-go score of 20 seconds or more
Neurological system	
Abnormal patellar tendon reflex	Clonus, or absent reflex
Abnormal Achilles tendon reflex	Clonus, or absent reflex
Abnormal plantar responses	Sign of Babinski
Peripheral neuropathy	The inability to perceive a monofilament (Semmes-Weinstein monofilament test) for at least 2 of 8 anatomical sites
Vestibular system	
Abnormal otoscopy	Otitis media, otitis externa, perforated tympanic membrane, or deformities tympanic membrane caused by trauma or surgery
Positive Dix-Hallpike maneuver	Vertigo associated with a mixed torsional and vertical nystagmus, a decline in the provoked vertigo and nystagmus within 30 seconds, and fatigability if the test was repeated
Abnormal audiometry	A Fletcher index of at least 35 dB for both ears ^b
Laboratory tests	
Moderately severe anemia	Hemoglobin levels between 5.0-6.0 mmol/L (8.1-9.7 g/dL) in women, or between 5.0-6.5 mmol/L (8.1-10.5 g/dL) in men
Severe anemia	Hemoglobin levels of < 5.0 mmol/L (< 8.1 g/dL)
Hyperglycemia	A nonfasting blood glucose of > 11.0 mmol/L (> 200 mg/dL)
Hypoglycemia	A nonfasting blood glucose of < 3.0 mmol/L (< 55 mg/dL)
Other	
Impaired vision	Corrected visual acuity of ODS ≤ 0.5

CER = patient-activated continuous-loop event recording; ECG = electrocardiography; ODS = oculi dexter et sinister.

^a Tandem gait score: the time in seconds added to the number of mistakes, multiplied by 3.

^b Fletcher index: the average hearing loss in decibels for 1, 2, and 4 kHz.

Supplemental Appendix 3. Score Form Used by the Reviewers

Page 1. Test results of the patient

History	
Patient number	[...]
Age/sex	[...] years / [...]
Medical history	[...]
Medication use	[...]
Onset, duration, and frequency of dizziness	[...]
Description of dizziness	[...]
Provoking circumstances	[...]
Associated symptoms	[...]
Hearing aid	[...]
Seeing aid	[...]
Walking aid	[...]
Physical examination, and additional tests	[...]
Dizziness Handicap Inventory Score	
Cardiovascular system	
Pulse	Frequency: [...] Regularity: [...]
Blood pressure, supine position	[...] mm Hg
Orthostatic hypotension test	Maximum decrease systolic blood pressure: [...] mm Hg Maximum decrease diastolic blood pressure: [...] mm Hg Reproduction of symptoms? [...]
Auscultation of the heart	Systolic/diastolic murmur? [...] Radiation? [...]
Electrocardiogram	[...]
Continuous loop event recording	[...]
Locomotor system	
Orthopedic screening	Stability at rest: [...] Stability during walking: [...] Mobility hip(s): [...] Mobility knee(s): [...] Mobility ankle(s): [...]
Tandem gait	Number of mistakes: [...] / Time: [...] sec
Timed up-and-go test	[...] sec
Neurological system	
Tendon reflexes	Patellar tendon reflex: Right [...] / Left [...] Achilles tendon reflex: [Right [...] / Left [...] Plantar responses: Right [...] / Left [...]
Semmes Weinstein monofilament test	Right: [...] / Left: [...]
Vestibular system	
Otoscopy	AD [...] / AS [...]
Dix-Hallpike maneuver	[...]
Audiometry	Fletcher-index: AD [...] / AS [...]
Corrected visual acuity	OD [...] / OS [...]
Psychiatric testing	Any somatoform disorder: [...]
(PRIME-MD Patient Health Questionnaire)	Major depressive disorder: [...] Other depressive disorder: [...] Panic disorder: [...] Any eating disorder: [...] Probable alcohol abuse/dependence: [...]
Laboratory tests	Hemoglobin: [...] g/dL Nonfasting blood glucose: [...] mg/dL
Additional comment physician	[...]
AD = auris dexter; AS = auris sinister; PRIME-MD = Primary Care Evaluation of Mental Disorders; OD = oculus dexter; OS = oculus sinister.	

Page 2. Assessment of the reviewer

Code reviewer: [...]

I. Subgroup dizziness? ¹ (mark with an X ; more than 1 choice is possible)	
Vertigo (a feeling that one or one's surroundings are moving)	
Presyncope (a lightheaded, faint feeling, as though one were about to pass out)	
Disequilibrium (a sense of unsteadiness that is (1) primarily felt in the lower extremities, (2) most prominent when standing or walking, and (3) relieved by sitting or lying down)	
Other dizziness (feeling not covered by the above definitions)	

II. Cause of dizziness? (mark with an X ; more than 1 choice is possible)		If X : give an estimate of the relative contribution of this cause of dizziness (total sum of contributing causes = 100%)
1. Adverse drug effect		
2. Cardiovascular disease (including cerebrovascular disease)		
3. Locomotor disease		
4. Metabolic or endocrine conditions		
5. Neurological disease (excluding cerebrovascular disease)		
6. Psychiatric disease		
7. Peripheral vestibular disease		
8. Impaired vision		
9. Other causes, namely: [...]		

III. Most probable cause of dizziness in words?
[...]

Reference

1. Sloane PD, Coeytaux RR, Beck RS, Dallara J. Dizziness: state of the science. *Ann Intern Med.* 2001;134(9pt 2):823-832.