Dizziness in older patients in general practice: away from diagnostic nihilism
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Summary

Dizziness in older patients in general practice: away from diagnostic nihilism
Dizziness is one of the most common geriatric symptoms in general practice. Each year, eight per cent of patients over 65 years of age consult their general practitioner (GP) for dizziness, increasing to 18% for those aged 85 years and older. Dizziness in these older age groups is often not easily explained and can be a very troublesome symptom, resulting in serious impairment in daily functioning, falls and social isolation. The lack of evidence supporting the diagnostic process and the management of dizziness, in older patients in particular, encouraged us to study dizziness. The main objectives in this thesis are therefore (1) to review current knowledge about the yield of diagnostic tests used in patients with dizziness in general practice, (2) to provide guidance for the diagnostic management of older patients with dizziness in general practice and (3) to study the prognosis of dizziness in older patients in general practice.

Chapter 1 gives an introduction on dizziness in general, on dizziness in general practice and especially on dizziness in older patients. It ends with the aims and outline of this thesis.

Chapter 2 presents a systematic review of the literature on tests used to evaluate dizziness in primary care. This systematic review shows that the evidence for the validity of commonly used diagnostic tests for dizziness in primary care is poor. Most studies of diagnostic tests for dizziness have been conducted in selected groups of patients and all included studies have, at least partially, been conducted in secondary or tertiary care settings. Furthermore, studies on the validity of frequently used tests to diagnose causes of dizziness, such as specific patient history items, pulse measurement, auscultation of the heart, and balance or gait tests, were lacking. Finally, a meta-analysis could only be performed on two tests, the head-shaking-nystagmus test and the head-impulse test (HIT), neither of which are commonly used in general practice. In acute dizziness the HIT is the most promising, with a positive test result confirming a peripheral vestibular dysfunction and a negative test result a central lesion. In general practice, however, these findings should be interpreted with caution.

In Chapter 3 is described how an international panel of 16 experts in the field of dizziness selected 21 out of 37 diagnostic tests contributing to the evaluation of dizziness in older patients in general practice. The input for this structured consensus or Delphi procedure is partly based on the results presented in Chapter 2. Only those tests of our review which met the crucial condition of using an appropriate reference standard were assessed by the panel. In addition, we searched for, and added, tests recommended by practice guidelines on dizziness, syncope or vertigo.
From the diagnostic tests the panel excluded, five are recommended by several practice guidelines (auscultation of the carotids, toe and heel gait, one-leg stance test, the timed up-and-go test and carotid sinus massage). Two diagnostic tests were included, although several guidelines question their diagnostic value (haemoglobin level and non-fasting blood glucose level) and two other diagnostic tests were included, although these have never been recommended by practice guidelines on dizziness (Semmes-Weinstein monofilament test and Patient Health Questionnaire (PHQ)). The resulting set of tests comprised elements of patient history (4 items), physical examination (11 items), and additional diagnostic tests such as the PHQ, an electrocardiogram and audiometry (6 items).

Finally, we used this set of 21 tests in a standardised diagnostic evaluation to study dizziness in older patients in general practice. Chapter 4 to 8 present the results of different studies performed among 417 older patients with dizziness and 115 without dizziness (Chapter 6) using this evaluation.

Chapter 4 describes a cross-sectional study in which a classification of diagnostic dizziness profiles ('phenotypes') is established. This classification may serve as an initial step in the management of older patients with dizziness. We used principal component analysis (PCA), a technique used to summarise a large number of variables by a small number of components, wherein associated variables form a distinct pattern or profile. To generate these profiles, we used a two-step procedure which mimics the diagnostic approach in daily practice, basing the first step on demographic data and patient history and, in the second step, adding information from the physical examination and diagnostic tests. The six identified dizziness profiles have been named and were distributed among patients as followed: ‘frailty’ (31%), ‘psychiatric conditions’ (39%), ‘cardiovascular constraints’ (49%), ‘presyncope’ (43%), ‘ear, nose and throat (ENT)’ (38%) and ‘non-specific dizziness’ (43%). In this study 88% of the patients could be classified in one of six profiles, while 76% patients were placed in more than one profile. This last finding is in agreement with the multifactorial nature of dizziness in older patients.

The profiles identified in both steps are quite similar, meaning that a thorough history-taking seems to be sufficient for the initial classification of dizziness. Furthermore, women scored highest on the ‘psychiatric conditions’ profile, men scored highest on the ‘cardiovascular constraints’ profile. Both the older old (75+) and the younger old (65-75) scored highest on the ‘cardiovascular constraints’ profile. Additionally, the older old scored high on the ‘frailty’ profile, the younger old scored low on several profiles, in particular ‘frailty’. 

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In Chapter 5 the test results of each patient with dizziness were independently reviewed by a panel consisting of a GP, a geriatrician, and a nursing home physician. According to this multidisciplinary panel the most common category of dizziness in older patients in general practice was presyncope (69%), followed by vertigo (41%), disequilibrium (40%) and other dizziness (2%). The same panel independently reviewed the data on major and minor contributory causes of dizziness. Contrary to most previous studies, cardiovascular disease was considered to be the most common major cause of dizziness (57%), followed by peripheral vestibular dysfunction (14%) and psychiatric disorders (10%). In a quarter of all patients with dizziness an adverse drug effect was regarded as contributory cause of dizziness, which is much higher than reported in previous studies. Additionally, two out of three patients were assigned more than one contributory cause of dizziness.

In Chapter 6 we analyse the diagnostic test results in older patients with and older patients without dizziness, assuming that if no differences are found, it is unlikely that these tests are relevant in the diagnostic evaluation of dizziness. Most notable test results with near non-informative odds ratios (OR) and non-significant 95% confidence intervals (CI) were: in the cardiovascular domain pulse rate measurement (OR 0.97, 95% CI 0.53-1.79) and orthostatic hypotension test (OR 1.70, 95% CI 0.98-2.95); in the locomotor domain the presence of orthopaedic leg disorder (OR 1.32, 95% CI 0.87-1.99) and mobility of hip, knee and ankle joints (OR 0.78, 95% CI 0.52-1.19); in the neurologic domain Achilles tendon reflexes (OR 0.70, 95% CI 0.42-1.17) and in the visual domain presence of cataract and/or macular degeneration (OR 0.95, 95% CI 0.57-1.59) and using glasses (OR 1.14, 95% CI 0.71-1.82).

Our results indicate that several tests and test items, although recommended by experts and practice guidelines, are irrelevant in the evaluation of patients with unspecified dizziness.

Chapter 7 describes the impact of dizziness on everyday life in older patients in general practice. Almost 60% of older patients with dizziness experienced moderate or severe impact on everyday life due to dizziness. With six simple indicators it is possible to identify which patients suffer the most from their dizziness without exactly knowing the cause(s) of their dizziness. These all include easily obtainable information, with certain features of dizziness (chronic dizziness (≥ 6 months), frequency at least daily, and duration of dizziness (≤ 1 minute)), having an anxiety and/or depressive disorder, the use of sedative drugs (mainly benzodiazepines), and impaired functional mobility.
The results of our study on the functional prognosis of dizziness in older patients are described in Chapter 8. Four out of ten patients still experienced impairment at 6 months. Nearly two out of three patients experienced less impairment and only one in ten had a substantial increase in impairment. Seven factors predicted an unfavourable course: chronic dizziness (onset at baseline at least six months ago); standing still as a dizziness provoking circumstance; trouble with walking and/or (almost) falling as a dizziness associated symptom; polypharmacy; absence of diabetes; having an anxiety and/or depressive disorder; and impaired functional mobility. With a score, based on these predictors, GPs can identify patients with the poorest functional prognosis without exactly knowing the cause(s) of their dizziness. Herein, a score of 4 corresponds with a predicted probability of 0.49, a score of 5 with 0.70, and a score of 6 with 0.85 of a poor functional prognosis of dizziness.

In Chapter 9, the general discussion, we discuss the main findings as well as some methodological issues. Additionally we propose several recommendations for future research and finally we offer implications for clinical practice. Although comprehensive clinical guidance is not yet available, this thesis offers the outline of a functional approach to overcome diagnostic and therapeutic nihilism in the management of dizziness in older patients. Firstly, although our results confirm that most older patients present with chronic dizziness, we found the HIT to be a promising test in patients presenting with acute vertigo. The HIT can discriminate between benign peripheral (such as vestibular neuritis) and central vestibular dysfunction (such as TIA or stroke). A positive test result increases the probability of peripheral vestibular dysfunction and a negative test result suggests a central lesion. Secondly, the newly classification of dizziness into profiles may serve as an initial step in the diagnostic evaluation of older patients with dizziness, as it makes a first selection of diagnostic domains possible. Diagnostic tests will be necessary to find underlying causes, but these tests can be directed and will be less than in a complete diagnostic work-up for dizziness. Thirdly, using the same easily obtainable clinical information and without knowing precisely the cause(s) of a patients’ dizziness, GPs can identify older patients with the poorest prognosis. Finally, in this group in particular, it might be most effective to reduce impairment with interventions focussing on modifiable factors influencing dizziness, such as mobility, hearing, anxiety and depression, and the use of drugs (especially fall risk-increasing drugs).