An analysis of referral patterns for dizziness in the primary care setting

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SUMMARY

Background. *The majority of balance disorders are non life-threatening and symptoms will resolve spontaneously. However, some patients require further investigation and many disorders may benefit from specialist treatment. It is unclear whether appropriate identification and referral of this group of patients presently occurs.*

Aim. *To review the management of patients with symptoms of dizziness within primary care.*

Method. *A retrospective review of the management of 503 patients who visited their general practitioner (GP) complaining of dizziness between August 1993 and July 1995. Management was then compared with local criteria.*

Results. *On average, 2.2% of patients per year at the practices studied consulted their GP about dizziness, amounting to 0.7% of all consultations. The most common GP diagnosis was of an ear, nose, and throat (ENT) disorder (33.8%). Similarly, many of the 16% referred were directed to ENT (36%) specialists. The proportion of patients referred was significantly higher in those seeing their GP at least twice, those with symptoms lasting a year or more, or where there were additional symptoms associated with the dizziness, indicative of a cardiac, ENT, or neurological disorder. Compared with the local criteria, 17% of management decisions were deemed inappropriate. The major failing was not referring appropriate patients. This group comprised patients with chronic, non-urgent symptoms, and were significantly older than those appropriately referred.*

Conclusion. *Patients with chronic symptoms of dizziness, particularly the elderly, are under-referred for specialist consultation and, therefore, do not have access to appropriate treatment regimes. This suggests a need for further training of GPs and evaluation of therapeutic needs of elderly dizzy patients.*

Keywords: primary care; dizziness; ENT.

Introduction

DIZZINESS is a common problem in primary care, accounting for 2% of consultations.[1] Its prevalence increases with age and may be as high as 30% in the over 65s.[2] In many instances, symptoms resolve spontaneously and there is low mortality and morbidity.[3] However, dizziness is also known to be associated with absence from work and high levels of anxiety,[4,5] and, therefore, the social and medical costs of persistent symptoms need to be considered.

Symptoms of dizziness pose a diagnostic challenge, as there are many potential causes. In addition, unravelling a history is often difficult, given that descriptions are often subjective and non-specific. It has been suggested that observation and medication are the primary management strategies, and that most episodes can be appropriately managed within primary care.[3] As well as undertaking these strategies, it is the GP's role to identify at the earliest stage those requiring specialist referral, so that use of resources in general practice and at the hospital level is optimized. This is particularly relevant given the recent advances in treatment of chronic balance disorders.[6,7]

At present, guidance for GPs is limited. Many helpful reviews are available,[8,9] but these are often aimed at aiding diagnosis rather than providing guidance on when and where to refer patients.

The aim of this investigation was to examine current practice in the management of dizziness by comparison with local criteria, and to analyse which factors influence GP management decisions. This will indicate areas where further research should be directed and where there is need for improved GP training.

Methods

Development of criteria

The first stage of this investigation was to develop criteria against which current practice could be reviewed. At present, no such guidelines exist, so systematic MEDLINE searches were carried out to highlight reviews[8,9] and investigations[10,11] relevant to best practice in the management of dizziness. In addition, the criteria were verified by discussion with at least one hospital consultant in each of the relevant specialties. Where possible, feedback was obtained from wider discussion within departments. (A list of the criteria may be obtained from the corresponding author.)

The criteria indicated that any case of a suspected serious cardiac or neurological disorder should be referred immediately. Alternatively, if there had been either three or more acute attacks, or disabling symptoms lasting for longer than six weeks and resisting treatment, then a routine referral was indicated. Once the decision to refer was made, the decision of where to refer; i.e. which specialty, was addressed separately. This was directed by information on associated symptoms, past medical history, and the nature of symptoms. For example, symptoms described as rotary in nature or with associated tinnitus should be referred to ENT. Results of clinical findings were not used in the standard as they are not universally used in general practice, and results of clinical tests are often variable and are frequently normal.[12]

Subjects

All surgeries routinely making referrals for dizziness to Addenbrooke's Hospital, Cambridge were contacted. Only four surgeries were sufficiently computerized, such that each patient episode was recorded and patient groups could be reliably identified by symptom keywords. Computer searches were carried out

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at three of these surgeries that were willing to participate, to identify patients who had seen their GP complaining of symptoms allied to dizziness in the period from August 1993 to July 1995 inclusive. From these, a stratified sample with coverage of 85%, 45%, and 30% at the three practices was studied in more detail. Subjects were excluded if they had seen their GP about the same problem within the past 12 months, so that episodes could be studied from onset. In each case, written notes were consulted in addition to the computerized records.

Statistical methods

Information about symptoms and management was retrieved from GP records and analysed where appropriate using the Statistical Package for the Social Sciences (SPSS). A multiple logistic regression model was obtained, using a backwards selection procedure, to assess how strongly each predictor was associated with the decision to refer. The statistical significance of each predictor was obtained using the likelihood ratio test, by comparing the goodness of fit of the selected model with that omitting the predictor. Odds ratios were estimated from the model to describe the odds of being referred relative to a baseline category. Ninety-five per cent confidence intervals for the estimated odds ratios were obtained to indicate their sampling-related uncertainty. Two-sided tests and the 5% level of statistical significance were used. The chi-squared test was used in analysis of failure to refer.

Results

Subject characteristics

In total, 503 patients were studied in the age range 3–99 years, with median 58 years. The symptom profiles reported by the patients are displayed in Table 1. The number of visits ranged from one to over 15, with 53% (n = 269) attending once, 22% (n = 113) twice, and 24% (n = 121) visiting on three or more occasions.

GP diagnosis and management

Symptoms of dizziness were most commonly diagnosed by the GP as cardiac, ENT, or neurological in origin (Table 2), and these categories were sufficiently represented to be used in the subsequent analysis.

Patients received treatment in 62% of cases (n = 312), almost exclusively by a drug prescription (n = 308, 99%). The remainder were treated with physiotherapy or counselling.

Referral was made to a specialist in 78 (16%) of the presenting patients. The most common referral route was to an ENT specialist (n = 28, 36%). Referrals were also made to neurology (n = 14, 18%), geriatrics (n = 12, 15%), cardiology (n = 11, 14%), general medicine (n = 5, 6%), and occasional referrals to rheumatology, psychiatry, and obstetrics and gynaecology.

Predictors of decision to refer

Logistic regression was used to identify the factors associated with the GP's decision to refer a patient to a specialist (Table 3). Referral rates were not associated with the patient's age, sex, or GP surgery. The odds of being referred were significantly positively associated with number of visits; length of history; the presence of associated cardiac (e.g. chest pain), ENT (e.g. tinnitus), or neurological (e.g. facial numbness) symptoms; and the presence of symptoms for which the nature was specifically described (e.g. vertigo).

Appropriateness of referral decisions

Referrals were audited according to the appropriateness of the decision to refer, the appropriateness of when the referral was made, and the appropriateness of where the referral was sent. In total, 17% of cases failed the criteria. These can be divided into the following four categories:

1. *Failure to refer*. This refers to the subjects who were not referred when this had been indicated by the criteria (n = 46/503, 9%). The criteria specified that suspected serious cardiac or neurological disorders should be referred immediately, otherwise referral should be for recurrent or persistent symptoms not improving with treatment. GPs rarely failed to refer the urgent cases (n = 2), but failed the criteria by failing to refer patients with persistent conditions (n = 44). The variation in referral rates for different subject and symptom characteristics is shown in Table 4. Under-referral was significantly more common for those at least 60 years of age ($\chi^2 = 4.04$; df = 1; $P<0.05$).
2. *Unnecessary referrals*. Where the GP made the decision to

Table 1. Dizziness characteristics. (Note: some subjects had more than one associated symptom or past medical history.)

Dizziness characteristic	Number of subjects	Percentage
Dizziness sensation		
Vertigo	162	32
Light-headedness	59	12
Faint (syncopal episode)	57	11
Unsteadiness	21	4
Unspecified dizziness	204	41
Length of history		
Less than two weeks	340	68
Two weeks to one year	26	5
More than year	29	6
Unknown	108	21
Associated symptoms		
Cardiac	13	3
ENT	45	9
Neurological	47	9
Other	26	5
None	382	76
Past medical history		
Cardiac	92	18
ENT	54	11
Neurological	49	10
Other	103	20
None	261	52

Table 2. GP provisional diagnosis

Diagnosis	Number (%)
ENT	170 (33.8)
Neurological	25 (5.0)
Cardiac	19 (3.8)
General medical	11 (2.2)
Iatrogenic	11 (2.2)
Psychiatric	9 (1.8)
Gynaecological	9 (1.8)
Rheumatological	6 (1.2)
Other	5 (1.0)
Unknown	242 (48.1)

Table 3. Factors associated with decision to refer: results of logistic regression analysis.

Variable	P-value	Odds ratio[a]	95% confidence interval
Number of visits	<0.001		
1		1	
2		3.3	1.5–7.4
3		11.9	5.6–25.2
Length of history	0.004		
Less than two weeks		1	
2–52 weeks		1.6	0.5–4.7
More than 52 weeks		5.7	2.1–15.9
Unreported[b]		0.8	0.3–1.8
Description of symptoms	0.004		
Vertigo		1	
Light-headedness		1.2	0.4–3.2
Faint (syncopal episode)		3.3	1.3–8.5
Unsteadiness		1.6	0.5–5.3
Unspecified		0.5	0.2–1.0
Associated symptoms	<0.001		
Cardiac		4.7	1.2–18.4
ENT		3.1	1.2–7.6
Neurological		4.0	1.8–8.8
Other		0.3	0.05–2.0

[a] For example, the odds of referral for those patients on at least their third visit was estimated to be 11.9 times the odds for those on their first visit. The 95% confidence interval does not include 1, indicating that this sample-based result is unlikely to have arisen by chance. [b] In 21% of the patients, the length of history was unreported. However, the results reported in Table 3 remained statistically significant when those subjects with unreported length of history were excluded from the logistic regression analysis.

Table 4. Analysis of 'failure to refer' cases.

Variable	Referral not made but indicated by criteria (a) (n = 46)	Referral indicated by criteria (b) (n = 103)	a/b (%)
Sex			
Male	19	37	51
Female	27	66	41
Age (years)			
Less than 60	15	46	33
More than 60	31	57	54
Diagnosis			
Cardiac	1	9	11
ENT	15	34	44
Neurological	7	17	41
Other	9	15	60
Unknown	14	28	50
Symptom description			
Vertigo	15	39	38
Light-headedness	5	11	45
Faint (syncopal episode)	2	15	13
Unsteadiness	3	6	50
Unspecified dizziness	21	32	66
Associated symptoms			
Cardiac	3	9	33
ENT	3	9	33
Neurological	9	22	41
Other	3	4	75

refer (n = 78), this was deemed unnecessary by the criteria in 27% cases (n = 21).

3. *Delayed referrals*. Of those referred, there was a delay with respect to the criteria in 14 subjects (18%).
4. *Referrals to an inappropriate specialty*. Referrals were directed to an inappropriate specialty in seven cases (9%). There was no systematic over- or under-referral to any particular specialist. Of the seven referred to the wrong specialist, three were subsequently re-referred to the specialist suggested by the criteria.

Discussion

Subject and symptom characteristics recorded here are in broad

agreement with previous studies in the primary care setting.[3,13] On average, 2.2% of patients registered at the three practices studied visited their GP about dizziness in one year, amounting to 0.7% of all consultations. In addition, 84% of patients were managed within primary care, in part reflecting the high spontaneous resolution rate of such symptoms. These findings are in good agreement with other studies.[1] By extrapolation from data presented here, 359 specialty referrals would be expected per year per 100 000 patients.

The factors influencing a GP's decision to refer are unsurprising, but worth noting. First, the decision to refer is significantly influenced by the length of history and the number of visits made by the patient. As might be expected, the presence of symptoms over a long period of time increased the likelihood of referral. The number of visits reflects, in part, the severity or chronicity of a condition, yet also indicates the degree to which a patient will complain, which will vary considerably. Significant underreporting of dizziness symptoms has been described,[14,15] suggesting that there are a number of patients reluctant to bother their doctor and who may still be experiencing symptoms. It is important, therefore, that GPs consider the degree of disability associated with the symptoms that are present, regardless of the number of visits made.

Additionally, referrals were higher where the specific nature of symptoms was recorded, and where associated cardiac, ENT, or neurological symptoms were present. This suggests that GPs are less likely to refer where symptoms are ambiguous or unfamiliar, and reflects the complexity of problems of dizziness.

While good coverage and sample size were obtained, the drawbacks of a retrospective study such as this is that collected data may be incomplete. In part, this may be because, generally, only positive findings are recorded. Alternatively, elements of background history may not have been discussed at the consultation. It is widely acknowledged that the history is critical in making a diagnosis in a dizzy patient,[12] hence further training may be indicated.

The most important element of management of balance disorders is referral of those requiring urgent further investigation for a suspected cardiac or neurological problem. The results show that GPs are appropriately referring these patients. In addition, in most cases, referral was made to the most appropriate specialist. However, of all referrals, this was deemed unnecessary in more than a quarter of cases. While this is of concern, there were insufficient numbers to analyse the possible reasons for this. This issue could be more easily investigated in the future by an audit of each relevant specialty at the point of receipt of referral.

The most notable area of failing the criteria was where GPs attempted to manage patients within primary care in cases where referral or earlier referral would have been more appropriate. In practice, therefore, there are a significant number of patients with significant balance problems, persisting perhaps unnecessarily. This results in a drain on primary care resources given the number of visits involved. Also, the social costs of inadequate treatment need to be considered, as dizziness is known to be associated with absence from work and high levels of anxiety.[4,5] Clearly, the question of how long watchful waiting should continue before referral is open to debate.

The criteria employed here make some headway in striking a balance between excluding conditions that will spontaneously resolve themselves and avoiding unnecessary waiting for patients requiring specialist treatment. The major concern is the much larger proportion of cases where referral is not made at all, although hospital services may be swamped if all of these were indeed referred. Failure to refer was significantly more common in elderly patients. Given that dizziness and imbalance are important risk factors for falls,[16] management in the elderly is an important issue. Recent work has shown that symptoms of dizziness in the elderly are predominantly caused by cardiac problems[17] and, therefore, referral may be warranted to rule out serious pathology. However, it has been suggested that hospital referral is rarely indicated in the elderly.[18] If so, this would indicate the need for community-based treatment programmes. This could incorporate balance training, fall-prevention measures, and confidence-building exercises. The involvement of physiotherapy and occupational therapy would clearly be important.

If referrals were to increase in line with the results here, longer waiting times might be expected. This may be mitigated by an expected reduction in unnecessary referrals, although further work is needed to analyse the factors associated with this. If more optimal management strategies for the elderly were in place, as suggested above, then no rise in referrals would be predicted. Overall, if management strategies are improved, this leads to correct and more speedy diagnosis and treatment, and consequent improvement in patient care.

Conclusions

More than one in six patients visiting their GP about dizziness failed the patient management criteria in some way. Most notably, a significant proportion of dizzy patients were not referred when this was recommended by the criteria, and this was more common in the elderly. This indicates a need for further training.

GPs appropriately immediately refer urgent cases of dizziness where there is a suspected cardiac or neurological aetiology. In addition, no trends were observed towards over- or under-referral to any one specialty.

The predicted increase in referrals resulting from changed practice would be partly off-set by an expected reduction in unnecessary referrals. However, the reasons for unnecessary referrals need further investigation.

The needs of elderly dizzy patients need to be assessed in more detail.

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