Charted Records of ED Dizzy Patients Suggest Overemphasis on Symptom Quality May Be Associated with Diagnostic Errors

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Introduction

Recognized, preventable medical errors are estimated to account for 44,000-98,000 deaths annually in the U.S.[1] In the Emergency Department [ED], errors in diagnosis may represent the majority of errors.[2] Although in the outpatient setting fewer than one in ten cases of dizziness is attributed to a 'serious cause' such as cerebrovascular accident (6%) or cardiac dysrhythmia (1.5%),[3] in the ED up to 25% of patients over age 50 may have ischemic stroke as a cause of new, isolated vertigo.[4] In the ED setting, therefore, there is a high premium on accurate diagnosis and a need for simple bedside methods to identify those at greatest risk.

Basic and clinical research suggests that bedside techniques to distinguish 'benign' from 'malignant' causes of dizziness should rely heavily on episode duration and triggers, but relatively little on symptom quality.[5-7] Preliminary research using paper-and-pencil tests suggests that ED physicians harbor misperceptions about the bedside evaluation of hypothetical dizzy patients. These misperceptions relate principally to an overemphasis on the qualitative (rather than temporal) features of dizziness as a chief complaint, and appear to derive from antiquated information presented in Emergency Medicine texts.[8]

Objective

The purpose of this study was to test the hypothesis that ED physicians over-emphasize the quality of symptoms when attempting to diagnose 'real' dizzy patients, thereby placing such patients at risk for misdiagnosis.

Methods

After IRB approval, we conducted a retrospective chart review of a sample of patients coming to an urban, tertiary care ED with a triage complaint of dizziness. From our ED triage database, we identified 1144 patients (ages 18-98) who had complaints compatible with our operational definition of 'dizziness' over a one year period (July, 1999 to June, 2000). Among these, there were 632 patients whose complaint was coded as “dizzy,” “dizziness,” or “vertigo;” 482 patients coded as “lightheaded”, “presyncope,” “faint,” or “syncope;” and 30 patients coded as “ataxia,” “unsteady gait,” or “off balance.” We reviewed 92 charts selected at random to determine whether charted records demonstrated a bias towards recording qualitative aspects of dizziness. A single, unmasked reviewer (neuro-otologist) abstracted five elements of history recorded about each patient: (1) date or time of first symptoms, (2) quality of dizziness, (3) associated pain, (4) triggers for dizziness, and (5) episode duration. The specialist reviewer then attempted to arrive at a tentative diagnosis on the basis of the complete charted ED record, and compared it to the final ED diagnosis.

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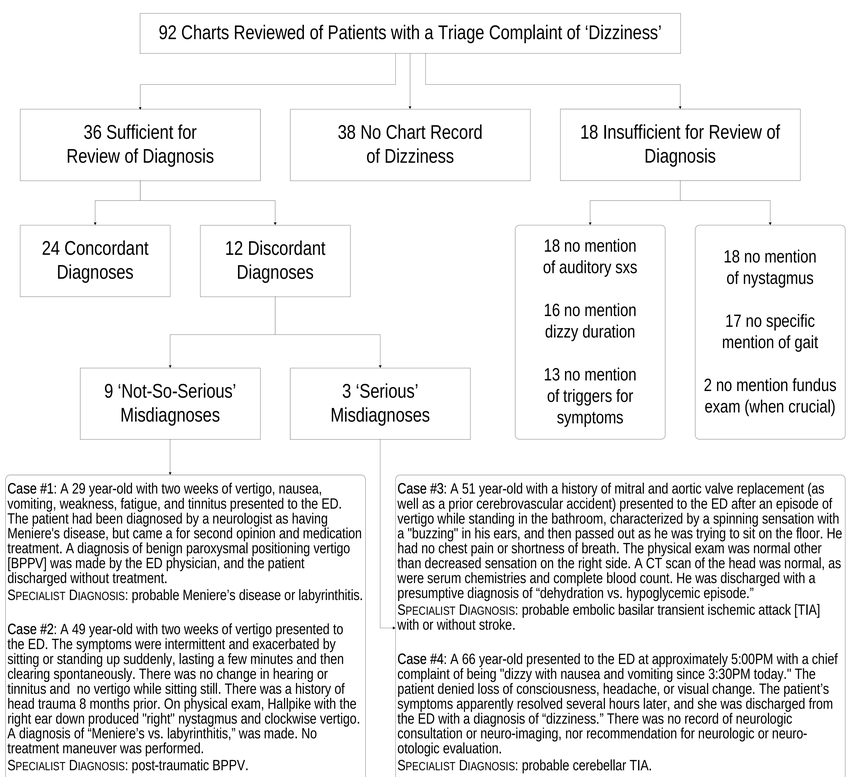
Results

Of the 43% (40/92) of charts that documented at least one of five attributes:

- 90% documented the date or time of first symptoms,
- 70% documented the quality of the dizziness,
- 50% documented the presence or absence of pain,
- 30% documented the presence or absence of triggers, and only
- 13% documented the episode duration; in
- *30% of charts no mention was made of pain, triggers, or episode duration*.

Although there were insufficient data in any chart to provide a 'definitive' specialist diagnosis, tentative diagnoses were possible in 48% (44/92) of charts on the basis of available information. Among these, there was discordance between specialist and attending ED physician diagnosis in 39% (17/44). Although most of these suspected misdiagnoses were likely of minor clinical significance (e.g. a diagnosis of benign positional vertigo in a patient likely to have vestibular migraine), 7% (3/44) of charted records suggested probable missed cerebrovascular events, translating to approximately one missed TIA or stroke per week in our hospital ED.



Discussion

Although it is impossible to discern with certainty an ED physician's diagnostic approach from a retrospective chart review, some inferences about the process may be drawn from the information documented (and not documented) in charts. The quality of dizziness was frequently charted (70%), while the duration of dizziness was infrequently charted (13%). From these data, it appears that the quality of dizziness is given more diagnostic weight by ED physicians than other attributes of the patient's history, most notably, episode duration.

These findings are in keeping with the fact that the dominant paradigm for evaluation of a dizzy patient is based upon a 'pathophysiologic' approach that presumes the *quality* of symptoms (vertigo, presyncope, imbalance, non-specific dizziness) reflects the underlying disease mechanism (vestibular, cardiovascular, neurologic, psychiatric). This approach (derived from a study performed more than 30 years ago in a subspecialty dizziness clinic focused on evaluation of chronically dizzy patients) relies on an exhaustive search for possible etiologies of dizziness, and is poorly suited to the ED environment, where evaluations are time-pressured and oriented towards ***triage*** rather than ***diagnosis.***[8] If abridged after the initial qualitative classification of dizziness, a faulty triage decision might well be made on the basis of this 'first-pass approximation.'

Conclusion

Insights gained through vestibular research over the past 30 years have established that episode duration, triggers, and presence or absence of pain usually provide diagnostic information far more important to triage decisions than symptom quality among ED patients with dizziness. In conjunction with our other preliminary studies demonstrating a correlation between physician misperceptions and outdated information in ED texts, we believe our current results point towards a system-level flaw in the way we train ED physicians to diagnose dizzy patients, that could be responsible for a substantial number of misdiagnoses of significant clinical impact. Prospective, masked studies examining diagnosis of ED dizzy patients are required to confirm these suspicions.

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