

# The focus on functional impairments in the rehabilitation of patients with unexplained functional dizziness

## Abstract

Dizziness is a complex symptom that will not always lead to a diagnosis. When clinical examination or objective tests cannot explain symptomatology, physicians may not know how to manage these patients aside from surgical and pharmacological means. Clinicians may subscribe to traditional dichotomous thinking that dizziness must be of a psychiatric origin especially; if there are no identified structural or organic problem. However, there is a need for clinicians to recognize functional dizziness as an entity and focus on improving the functional impairments that arise from this condition. In place of long-term pharmacological treatments or surgery, a hybrid approach of psycho education, cognitive behaviour therapy and habituation exercises can empower and reduce dizziness handicap in this group of patients.

**Keywords:** functional impairments, psycho education, cognitive behaviour therapy, habituation, counselling, rehabilitation, chronic subjective dizziness, functional dizziness

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**Abbreviations:** VRT, vestibular rehabilitation therapy; CSD, chronic subjective dizziness; PPPD, persistent perceptual postural dizziness; VOR, vestibular-ocular reflex; CBT, cognitive behaviour therapy; PPV, phobic postural vertigo; VV, visual vertigo; SMD, space-motion discomfort

## Introduction

Dizziness, unsteadiness, and vertigo are common presenting symptoms of patients in general.<sup>1</sup> Dizziness can be caused by a myriad of aetiologies,<sup>2</sup> including peripheral or central vestibular dysfunction and may have a multi-factorial cause. Lifetime prevalence of dizziness has been estimated to be around 20-30%,<sup>3</sup> with diagnosing the cause of dizziness remaining a challenge to many physicians and/or specialists.<sup>4</sup> In a traditional dichotomous paradigm, dizziness can be broadly categorized into psychiatric or structural/organic causes. However, this narrative has recently been challenged, as there are patients with unexplained functional dizziness that are neither psychiatric nor structural in origin. Often, these patients may also have seen multiple physician specialties with unremarkable clinical or objective test findings.<sup>5</sup> They are hence, discharged with pharmacological treatment and a symptom checklist.

Pharmacological treatments may include anti-cholinergic, benzodiazepines and antihistamines that cross the blood-brain barrier with a sedating effect.<sup>6</sup> Especially in an ageing population, long-term pharmacological treatment for chronic dizziness is not ideal considering the increased risk of respiratory depression and falls,<sup>7</sup> including exacerbating dizziness as a side effect. Hence, long-term pharmacological treatment should be avoided in this vulnerable patient group. When making management decisions, there is a need for clinicians to challenge the narrative on dizziness, recognise functional dizziness as a separate entity and acknowledge patients' functional impairments. Alternative treatment plans such as psycho education with cognitive behaviour therapy and habituation exercises, which focus on improving patients' functional impairments, may then

be systematically applied. It is not uncommon for clinicians to make management decisions based solely on objective test results. However, objective test results should always be correlated with patients' functional impairments when making management decisions.

For example, in specialist neuro-otologic/vestibular clinics, a common clinical mistake is to send patients tested positive for vestibulopathy but with no functional impairments for vestibular rehabilitation therapy (VRT). A unilateral weakness on the gold standard caloric test for vestibulopathy for example, may help with diagnostic confidence in certain disease models, but has little clinical value from a rehabilitation perspective. Such an aphysiological test<sup>8</sup> of the labyrinthine's response to low-frequency stimulation does not correlate well with the patients' functional impairments. Functional impairments is a consequence that ensues because of the symptoms, such as a major limitation in activities of daily living, relative to most people. A diagnosis alone, with a symptom checklist and objective test findings are insufficient to determine a functional impairments.

The hallmarks of vestibular functional impairments include, oscillopsia, visual-vestibular dysfunction, an exaggerated sense of self-motion and disequilibrium. These impairments often arise from an impaired Vestibular-Ocular Reflex (VOR) in the physiological range from 0.5Hz to 6Hz,<sup>9</sup> which does not include movements stimulated by the Caloric test. Hence, sending a patient for traditional VRT without first understanding the status of central compensation is erroneous as there may be nothing for the therapists to correct if there are no functional impairments. This supports the need for both diagnostics and rehabilitation professionals to have in-depth conceptual and procedural knowledge of vestibular and equilibrium mechanisms.

On the contrary, some patients may have unremarkable objective tests or clinical signs but are still complaining of dizziness. It is then not uncommon for clinicians to refer these patients to rehabilitation therapists when they fall out of pharmacological and surgical management plans. These patients if not sent for unnecessary VRT, are often discharged with symptomatic medical treatment. However, if

functional dizziness is considered as a diagnosis, a hybrid of extensive psycho education with Cognitive-Behaviour Therapy (CBT) and some habituation exercises will suffice in place of traditional VRT and long-term medication.

Functional dizziness is a new term for somatoform or psychogenic dizziness, whose prevalence may be even more common than well-known structural vestibular disorders.<sup>10</sup> It is a condition that arises from a change in the functioning of organ systems, rather than from psychiatric disorders or structural defects, which are separate entities.<sup>11</sup> The term functional giddiness includes features of previously known Phobic Postural Vertigo (PPV), Chronic Subjective Dizziness (CSD), Visual Vertigo (VV) and Space-Motion Discomfort (SMD), culminating in a consensus statement on Persistent Perceptual Postural Dizziness (PPPD).<sup>12</sup> The challenge in this diagnosis is that it can co-exist with an organic dysfunction such as vestibulopathy and/or psychiatric disorder. The order of events, in a “which came first, chicken or egg?” paradigm is hence hard to determine.

To illustrate, a bottom-up mechanism starts from a peripheral organic dysfunction, which triggers a network central alarm system that causes dizziness, while a top-down approach may occur in someone with predisposing anxiety-related personality traits disorder. As there are extensive cross-linking neural networks between higher centres of the brain and the vestibular nuclei,<sup>13</sup> psychiatric disorders can greatly influence vestibular function and the manifestation of somatic symptoms. Whereas in a mixed model, a bottom-up peripheral dysfunction will trigger a central network alarm system that further accentuates somatic symptoms in a negative feedback loop of perpetual persistent dizziness.

Regardless of the order of events or diagnosis, the focus should be on improving functional outcomes. Hence, patients who fulfil the criteria for PPPD should be recognised and treated with a hybrid of psycho education, CBT, and components of VRT with focus on habituation. Desensitizing patients to identified triggers with habituation exercises will facilitate central adaptation. When this is coupled with CBT, the severity of somatic symptoms can be reduced by the central mediation of mood and anxiety levels. Lastly, unremarkable objective test results are used as powerful psycho education counselling tools, to convince the patients that they can carry out graduated exercises in a safe and calibrated clinic environment, with the eventual goal of restoring their usual mobility with sustained reduction in dizziness. There is some evidence to suggest that more than 70% of patients reported sustained reduction of dizziness symptoms, at least after 1 year of flexible treatment.<sup>14</sup> However, further prospective randomized control trials are needed to validate such findings.

Management plans are very important as they drive clinical outcomes. Although the most efficacious plans are dependent on the accuracy of the diagnoses, there may not always be a diagnosis especially when dizziness is concerned. Nevertheless, functional outcomes of patients with dizziness can be improved with the recognition of function dizziness and hence, focus on improving functional impairments. Clinicians should adopt a different narrative,

which challenges the dichotomous structural and psychiatric causes of dizziness, and hence consider alternative management plans in place of the usual pharmacological or surgical preference for this patient group.

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## Conflicts of interest

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