

# Rethinking Dysautonomia: Misdiagnosis, Neurodegenerative Bias, Multi-Factorial Pathophysiology, and the Primacy of the Patient Narrative

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## Abstract

*Dysautonomia remains one of the most diagnostically complex conditions in contemporary medicine, characterised by multi-system involvement and heterogeneous aetiology. Despite substantial evidence that autonomic dysfunction may arise from reversible, non-degenerative, and multi-factorial causes, clinical interpretation frequently defaults to neurodegenerative frameworks. This paper examines four interrelated domains contributing to this diagnostic pattern: misdiagnosis through premature closure, neurodegenerative bias in clinical reasoning, under-recognition of multi-factorial secondary dysautonomia, and the central role of the patient narrative in establishing causation. Drawing on established literature and a longitudinal clinical trajectory demonstrating severe autonomic dysfunction followed by stabilisation and recovery, this paper argues for a paradigm shift from deterministic, single-cause diagnostic models toward probabilistic, time-dependent, and systems-based reasoning. Central to this reframing is the recognition that the patient narrative is not ancillary but foundational to accurate diagnosis. Repositioning dysautonomia within an integrative, longitudinal framework has significant implications for diagnostic accuracy, prognostic communication, and therapeutic opportunity.*

**Keywords:** Dysautonomia, Autonomic Dysfunction, Misdiagnosis, Neurodegenerative Bias, Secondary Dysautonomia, Multi-Factorial Disease, Diagnostic Error, Patient Narrative, Systems Medicine, Longitudinal Diagnosis

# RETHINKING DYSAUTONOMIA

MISDIAGNOSIS, NEURODEGENERATIVE BIAS, MULTI-FACTORIAL PATHOPHYSIOLOGY, AND THE PRIMACY OF THE PATIENT NARRATIVE

## THE COMMON PATH TO MISDIAGNOSIS



Dysautonomia identified



Severity & multi-system involvement noted



Neurodegenerative causes prioritised



Premature diagnostic closure

RESULT: MISDIAGNOSIS, THERAPEUTIC NIHILISM, LOST OPPORTUNITIES

Dysautonomia is a non-specific clinical signal arising from multiple potential causes. Its interpretation depends on how we listen, how we reason, and how we see the story behind the symptoms.

## A BETTER PATH TO ACCURATE DIAGNOSIS



Listen to the patient's story



Identify multi-factorial insults over time



Assess trajectory: injury vs degeneration



Recognise potential for recovery

RESULT: ACCURATE DIAGNOSIS, PERSONALISED CARE, HOPE FOR RECOVERY

THE PATIENT NARRATIVE IS THE BRIDGE TO TRUTH

## MULTI-FACTORIAL PATHOPHYSIOLOGY

Dysautonomia often results from the cumulative effect of multiple insults



Individually small – Collectively significant – Temporally distributed – Often invisible to standard testing

## NEURODEGENERATIVE BIAS



- Historical anchoring to  $\alpha$ -synucleinopathies
- Severity mistaken for irreversibility
- Similar test results assumed to mean same pathology
- Leads to deterministic thinking and misinterpretation

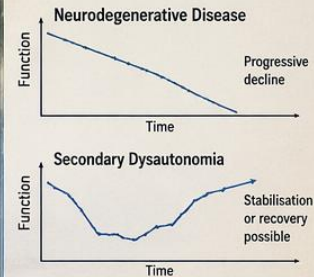
## THE PRIMACY OF THE PATIENT NARRATIVE



- ✓ Provides chronology and context
- ✓ Reveals triggers and turning points
- ✓ Identifies cumulative "hits" over time
- ✓ Distinguishes injury from degeneration
- ✓ Reveals recovery trajectories
- ✓ Integrates symptoms across all systems

THE MOST ACCURATE DIAGNOSTIC TOOL WE HAVE

## TRAJECTORY MATTERS



## CLINICAL IMPLICATIONS OF GETTING IT RIGHT



Improved Diagnostic Accuracy



Recognition of Reversibility



Patient-Centred Care



Targeted & Timely Interventions



Hope & Realistic Prognosis

TO UNDERSTAND DYSAUTONOMIA, WE MUST LOOK BEYOND THE SNAPSHOT AND LISTEN TO THE STORY THAT UNFOLDS OVER TIME.

*The patient narrative is not supplementary – it is foundational.*

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## 1. Introduction

Autonomic dysfunction represents a complex clinical entity characterised by impairment across cardiovascular, gastrointestinal, thermoregulatory, and genitourinary systems. While advances in autonomic testing have improved the ability to quantify dysfunction, determining the underlying aetiology remains a significant challenge. In clinical practice, dysautonomia—particularly when severe or multi-systemic—is frequently interpreted within a neurodegenerative framework. This assumption often precedes sufficient longitudinal observation or mechanistic evidence. This paper addresses a critical issue in autonomic medicine: the tendency to prematurely classify dysautonomia as neurodegenerative, and the consequences of this interpretive bias. It argues for a conceptual shift toward probabilistic, longitudinal, and systems-based diagnostic reasoning, with particular emphasis on the central role of the patient narrative.

The link below pictures of this story within the medical narrative within a musical presentation:

<https://heyzine.com/flip-book/6304e2c641.html>

## 2. Dysautonomia as a Non-Specific Clinical Signal

Autonomic dysfunction reflects disruption of the autonomic nervous system but does not, in itself, define a specific disease. It may arise from diverse aetiologies, including neurodegenerative, autoimmune, infectious, metabolic, and iatrogenic causes [1].

Consensus statements emphasise that autonomic testing evaluates physiological function—such as cardiovagal, adrenergic, and sudomotor responses—but does not determine underlying cause [2]. As a result, similar patterns of dysfunction may arise from fundamentally different pathological processes.

## 3. Misdiagnosis and Premature Diagnostic Closure

### 3.1 The Diagnostic Pathway

A common clinical sequence involves:

1. Identification of autonomic dysfunction
2. Recognition of severity or multi-system involvement
3. Prioritisation of neurodegenerative causes
4. Assignment of a working diagnosis such as pure autonomic failure

While this reasoning is not inherently flawed, it often reflects pattern recognition rather than causal confirmation.

### 3.2 Cognitive and Structural Drivers

Diagnostic error in complex conditions is frequently influenced by cognitive bias. These include:

- **Anchoring bias:** Over-reliance on initial impressions
- **Availability bias:** Preference for familiar diagnostic categories

- **Premature closure:** Failure to reconsider initial conclusions

The National Academies of Sciences, Engineering, and Medicine highlight that such cognitive processes are a major contributor to diagnostic error, particularly in multi-system conditions [3].

Additional structural factors include limited consultation time,

fragmented specialist input, and pressure to provide definitive diagnoses early in the clinical process.

## 4. Neurodegenerative Bias in Autonomic Medicine

Autonomic dysfunction has historically been studied within the context of neurodegenerative disorders, particularly  $\alpha$ -synucleinopathies such as Parkinson's disease, multiple system atrophy, and pure autonomic failure [4]. This historical association has contributed to a persistent cognitive bias whereby dysautonomia is interpreted as evidence of neurodegeneration.

### 4.1 Severity Bias

Severe or widespread autonomic failure is often assumed to indicate irreversible pathology. However, evidence demonstrates that profound autonomic dysfunction may also occur in non-degenerative conditions, including autoimmune autonomic ganglionopathy and acute autonomic neuropathies, where partial or substantial recovery has been documented [5].

### 4.2 Limitations of Testing

Autonomic testing cannot distinguish between degenerative and non-degenerative causes, reinforcing the risk of misinterpretation. Patients with distinct aetiologies may present with similar functional profiles.

## 5. Multi-Factorial Secondary Dysautonomia

### 5.1 A Systems-Based Perspective

Emerging evidence supports the recognition of dysautonomia as a multi-factorial condition in many cases. Contributing factors may include infection, immune activation, surgical intervention, metabolic stress, and chronic physiological strain [1].

These factors may act cumulatively, producing dysfunction that cannot be attributed to a single cause.

### 5.2 Barriers to Recognition

Multi-factorial dysautonomia is frequently under-recognised due to:

- Dominance of single-cause diagnostic models
- Absence of formal diagnostic criteria
- Fragmentation across medical specialties
- Cognitive preference for simpler explanations

This reflects a broader limitation of reductionist medical frameworks when applied to complex, network-based conditions.

### 5.3 Misinterpretation of Progression

Cumulative physiological insult may produce patterns of worsening that mimic neurodegeneration. However, such progression may reflect the accumulation of injury rather than intrinsic neuronal loss.

## 6. The Importance of Longitudinal Assessment

A key distinction between neurodegenerative and secondary dysautonomia lies in disease trajectory:

- Neurodegenerative conditions typically demonstrate progressive decline

• Secondary dysautonomia may stabilise or improve over time  
Without longitudinal observation, clinicians are required to infer trajectory from a single time point, increasing the risk of misclassification.

## 7. The Primacy of the Patient Narrative

### 7.1 Narrative as Diagnostic Tool

In complex autonomic disorders, the patient history is often the most informative diagnostic instrument. It provides:

- Temporal sequencing of events
- Identification of precipitating factors
- Insight into symptom evolution and recovery

Gilden has argued that the clinical history remains the most accurate autonomic function test in such contexts [6].

### 7.2 Identifying Multi-Factorial Causation

The patient narrative enables recognition of cumulative “hits,” including infection, procedural interventions, and prolonged physiological stress. These patterns are often invisible to objective testing alone.

### 7.3 Differentiating Injury from Degeneration

Narrative features such as acute onset, identifiable triggers, and periods of recovery support an injury-based model, whereas insidious progression without recovery is more consistent with neurodegeneration.

### 7.4 Integration Across Systems

The patient narrative uniquely integrates multi-system symptoms, overcoming the fragmentation inherent in specialty-based care.

## 8. Clinical Implications

Premature classification of dysautonomia as neurodegenerative may result in:

- Psychological distress for patients
- Deterministic prognostic framing
- Missed opportunities for therapeutic intervention

Conversely, recognising multi-factorial and potentially reversible causes allows for:

- More accurate prognosis
- Expanded treatment strategies
- Improved patient-centred care

## 9. Toward a Revised Diagnostic Framework

A revised approach to dysautonomia should incorporate:

- **Diagnostic humility** – recognising early diagnoses as provisional
- **Longitudinal reasoning** – prioritising trajectory over snapshot
- **Multi-factorial models** – allowing for interacting causes

- **Narrative integration** – elevating patient history to core diagnostic status
- **Systems-based thinking** – recognising the autonomic nervous system as an integrated network

## 10. Conclusion

Dysautonomia is frequently misinterpreted due to historical, cognitive, and structural factors that favour neurodegenerative explanations. However, substantial evidence supports a broader, more nuanced understanding of autonomic dysfunction as a heterogeneous and potentially reversible condition.

Accurate diagnosis requires a shift from deterministic to probabilistic reasoning, from cross-sectional to longitudinal assessment, and from reductionist to systems-based models. Central to this transformation is the recognition that the patient narrative is indispensable in identifying causation, trajectory, and recovery.

## Musical Presentation

<https://heyzine.com/flip-book/6304e2c641.html>

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