# Late-onset GM2 Patient Journey

## LATE-ONSET TAY SACHS/SANDHOFF (GM2)

- Rare, neurodegenerative lysosomal storage disorders
- Tay Sachs disease is caused by mutations in the HEXA gene which result in excessive accumulation of gangliosides (lipids) in the brain and nerve cells*
- Sandhoff disease results from mutations in the HEXB gene*


## OBJECTIVES

Understand the physical and emotional aspects of the patient journey, including symptom onset, diagnosis, and ongoing disease management.

## METHODS

- **18 surveys and interviews** with late-onset Tay Sachs/Sandhoff (GM2) patients (n=13) and caregivers (n=5) in the US
- All patients/caregivers 18+ years of age
- **5 interviews** with GM2 expert physicians in the US, UK, DE, and ES
- Research currently ongoing; poster summarizes interim findings

## CONCLUSIONS

Symptoms typically emerge in childhood or young adulthood. Diagnosis often takes over a decade; common misdiagnoses include Amyotrophic Lateral Sclerosis (ALS) and Spinal Muscular Atrophy (SMA). Treatment is limited to symptomatic management and patients are often frustrated with healthcare providers. Patients lose the ability to perform activities of daily living and fear the complete loss of an independent life.



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## THE LATE-ONSET TAY SACHS/SANDHOFF (GM2) PATIENT JOURNEY

### Childhood Symptoms

**40%** first experience symptoms in childhood

**Pediatricians** tell them they're normal

**Patients** believe them and cope by avoiding activities and working harder

Median age: 10
Age range: 9-13

### Adult Symptoms

**47%** first experience symptoms in their 20s

**Patients** continue to believe they are normal as symptoms worsen

**Patients cope** by avoiding lengthy walks to school / work and trying to get stronger

Median age: 24
Age range: 18-46

### Triggers for HCP Visit in Adulthood

**Persistent / worsening symptoms**

**Coping** with school, jobs, marriage, and family is harder

**Friends / family** tell them their issues are not normal and they should see a doctor

Median # HCPs visited: 4
# HCPs range: 1-12

### Cycle of No Diagnosis/ Misdiagnosis

**Patients see:**
Neurologist: 88%
Geneticist: 27%
Internist: 22%

**60%**

**Patients believe** most HCPs show little compassion

**Receive a misdiagnosis.** ALS and SMA most common

Median time to diagnosis:
13.5 years from symptom onset (range: 3-33 years)

### The GM2 Diagnosis

GM2 diagnosis made by:

**Neurologists** **66%**

**Geneticists** **22%**

**Patients feel** diagnosing HCPs are more committed to finding a diagnosis and compassionate

### Living with GM2

**Patients fear** the loss of ability to walk or speak

**Patients forced to stop work / school** and move home with parents

**Current treatment is symptomatic**

**Patients** visit neurologists 1-2 times per year

| EMOTIONS | SELF-BLAME | CONFUSION | FRUSTRATION | DESPAIR | RELIEF | ANXIETY |
|---|---|---|---|---|---|---|
| IN THEIR OWNWORDS | "I was clumsy and walked funny, but thought I was normal." | "My friends said my walk wasn't normal, but I thought I needed to get stronger." | "I fell and broke my hip at 24. My mom said, 'This is not normal. You're seeing a doctor about this right now." | "The specialist said I had atypical ALS. It's a death sentence." | "The GM2 diagnosis was a relief, but also scary." | "Late-onset GM2 takes everything from you. It's a terrible disease." |

| EARLIER SYMPTOMS | % Who Experience | Symptom Area | % Who Experience | LATER SYMPTOMS |
|---|---|---|---|---|
| Always use handrails on stairs; climb stairs with two feet on each step; Awkward walking / running / waddling; Legs weak and tire easily after running / walking | 80% | Legs | 90% | Can't climb stairs; move to single floor home; install ramps / rails; Walk only with cane, walker, or in wheelchair; Can't stand up without assistance; can't run at all |
| Frequent falls; difficulty playing sports | 75% | Balance | 75% | Falls even more frequent, sometimes resulting in fractured or broken bones |
| Tire more easily than others | 50% | Fatigue | 75% | Tire walking any distance; always fatigued; difficult to work |
| Depression resulting from symptomology; Mood swings resulting from symptomology; Short-term memory loss; Inability to focus | 50% | Mental Health | 50% | Less depressed after diagnosis; diagnosis a relief that reduces self-blame; Mood swings continue; Short-term memory loss intensifies; lose ability to manage daily tasks (e.g., dressing, bathing); Inability to focus makes work difficult/impossible |
| Arm weakness, difficulty with sports; Clumsy, always dropping things | 50% | Arms | 70% | Arms too weak to push up from sitting position; requires assistance; Difficulty grasping, carrying, opening objects; unable to perform daily tasks in home |
| Slurred, slowed speech | 33% | Speech | 50% | Worsening speech, sometimes becoming incomprehensible |

*Adapted from National Organization of Rare Disorders (https://rarediseases.org/rare-diseases/tay-sachs-disease)

## EXPERT PHYSICIAN PERSPECTIVE

"Neurologists in the community would almost never diagnose GM2. It's difficult for me, and I specialize in rare conditions. It's a multi-systemic storage disorder and extremely rare. We need early referrals and genetic testing to diagnose tough patient cases like GM2."

– Physician, UK

SANOFI GENZYME