REGULAR MONITORING FOR EARLY SYMPTOM MANAGEMENT

Help your patients navigate life with ASMD

Acid sphingomyelinase deficiency (ASMD)—historically known as Niemann-Pick disease types A, A/B, and B—is caused by reduced activity of the enzyme acid sphingomyelinase (ASM). ASMD is a progressive, genetic disease that can lead to shortened lifespan in both adult and pediatric patients.[1]

There are 3 subtypes of ASMD: type A, type A/B, and type B, which have variable onset, phenotype, and impacts on life expectancy. Regardless of the ASMD type, ASM deficiency can lead to long-term, multisystemic complications, and patient uncertainty.[1]

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ASMD
ACID SPHINGOMYELINASE DEFICIENCY

ASMD IS PROGRESSIVE AND CAN PUT PATIENTS AT RISK FOR LONG-TERM, MULTIORGAN DAMAGE[2]

ORGAN DAMAGE CAN BEGIN AS EARLY AS INFANCY[2]

In some patients, ASMD symptoms can manifest as early as infancy and progress through adulthood, resulting in prolonged multiorgan damage.

ASMD CAN PROGRESS SILENTLY[1-3]

- There have been cases reported that some patients with ASMD type B had frank cirrhosis in the absence of any clinical symptoms of liver failure. Focusing solely on current clinical presentation could lead to underestimating the risk of potentially life-threatening complications.
- Some changes, such as interstitial lung disease (ILD) or cirrhosis, might be subclinical and go unnoticed without specific tests. Regular disease assessments can help with early detection of these changes and help inform disease management recommendations.

THE MULTISYSTEMIC SIGNS AND SYMPTOMS OF ASMD CAN BE RELENTLESSLY PROGRESSIVE AND POTENTIALLY LIFE-THREATENING[1,2]

IN PATIENTS WITH ASMD TYPES A/B AND B:

>90% OF PATIENTS HAVE SPLENOMEGALY[1]

Increased spleen volume can lead to hypersplenism with increased risk for bleeding and splenic ruptures. The degree of splenomegaly was shown to correlate with hepatomegaly, growth, lipid profile, and hematologic parameters.[1,4,5]

>80% OF PATIENTS HAVE INTERSTITIAL LUNG DISEASE[1]

Abnormal DLCO* can be an indicator of ILD. ILD may impair daily exercise and respiratory disease is a leading cause of death. A proportion of patients with ILD may progress to oxygen dependence and pulmonary failure.[6-8]

>70% OF PATIENTS HAVE HEPATOMEGALY[1]

Hepatomegaly is associated with liver fibrosis, which may progress to cirrhosis and even liver failure in some patients with ASMD.[2]

>50% OF PATIENTS HAVE THROMBOCYTOPENIA[1]

Patients with thrombocytopenia may experience serious bleeding events such as subdural hematoma, hematemesis, and hemothorax. Anemia and leukopenia also may be present. Patients may also experience fatigue.[2,9]

>50% OF PATIENTS HAVE PEDIATRIC GROWTH DELAY[10]

Children and adolescents may experience delayed bone age, short stature, low weight, and delayed puberty. Both pediatric and adult patients may experience joint and limb pain.[5]

Early management and ongoing monitoring for disease progression are critical for optimizing patient outcomes.[2,5]

*DLCO below the predicted reference range (75% to 140% of predicted).[6]

DLCO=diffusing capacity of the lungs for carbon monoxide.

REGULAR MONITORING IS CRITICAL FOR EARLY SYMPTOM MANAGEMENT

Reducing morbidity starts with monitoring and managing disease progression[1,2,5,10]

SCHEDULE OF ASSESSMENTS

This assessment overview is based on published recommendations developed by a group of physicians experienced with ASMD and the management of patients with ASMD. These recommendations are considered routine and appropriate to monitor multisystemic manifestations for patients with ASMD, and may potentially facilitate appropriate symptom management. They are not meant to replace clinical judgment of the healthcare team. Depending upon the clinical needs of the individual patient, the type of tests and frequency of assessments may vary based on a clinician's medical judgment.

	At diagnosis	Every 3-6 months/ at each visit	Every 6-12 months/ at each visit	Periodically
HISTORY AND GENERAL/ PHYSICAL EXAM[2]				
Baseline: establish natural history, systemic involvement, current level of disease severity, and estimated rate of progression	●			
Establish rate of progression	●	● 3-12 months		
Document growth parameters (in children), assess for neurologic features, organomegaly, fatigue, abdominal pain, and/or bleeding tendency	●		●	
Ophthalmology evaluation: presence of cherry-red spots at baseline	●			
Evaluation of nutritional status and safety of oral intake	●		●	
Assess need for family support and resources at each visit*	●		●	
SPLEEN[2]				
Spleen size (MRI or CT)†	●		●	
LIVER[2,5]				
Liver size (MRI or CT)†	●		●	
Liver elastography or FibroScan® to evaluate for hepatic fibrosis and cirrhosis	●		●	

*Assess need for community or online resources, such as Parent to Parent, social work involvement for parental support, and home nursing referrals.
†Ultrasound can be performed in younger patients and where resources are limited. MRI or CT are the recommended methods to calculate organ volume, although ultrasound may be substituted in patients unable to tolerate the MRI or CT.
CT=computed tomography; MRI=magnetic resonance imaging.

SCHEDULE OF ASSESSMENTS (continued)

	At diagnosis	Every 3-6 months/ at each visit	Every 6-12 months/ at each visit	Periodically
LIVER[2,5] (continued)				
Monitor liver disease using the Child-Pugh classification	●		●	
Portal pressure	● On an individual basis		●	
Screen for esophageal varices	● As needed in patients with portal hypertension		●	
Liver biopsy	● On an individual basis			
LUNGS[2,5]				
Respiratory status: assess for recurrent chest infections and shortness of breath	●		●	
Pulmonary function testing: DLCO, oxygen saturation, exercise tolerance, and 6MWT*	●		●	
Chest radiograph and/or HRCT to assess extent of ILD	●			● Every 2-4 years
BLOOD[2,5]				
CBC to evaluate for thrombocytopenia, leukopenia, anemia, and increased bleeding	●		●	
Serum chemistries including liver transaminases (ALT, AST), GGT, albumin, clotting factors, enhanced liver fibrosis tests, and vitamin D to evaluate for progression of hepatic dysfunction	●		●	
Measurement of lipid profile	●		●	
Biomarkers (including LSM)	●		●	
HEART[2,5]				
Stethoscope screening of heart/lungs	●	●		
EKG, echocardiogram, and coronary angiogram as indicated	●			● Every 3-5 years

*In patients old enough to cooperate.
6MWT=6-minute walk test; ALT=alanine aminotransferase; AST=aspartate aminotransferase; CBC=complete blood count; EKG=electrocardiogram; GGT=gamma-glutamyl transferase; HRCT=high-resolution computed tomography; LSM=lyso-sphingomyelin.

SCHEDULE OF ASSESSMENTS (continued)

	At diagnosis	Every 3-6 months/ at each visit	Every 6-12 months/ at each visit	Periodically
SKELETAL[2,5]				
Assess for fractures and/or extremity pain	●		●	
Bone density studies	●			● Every 2-4 years
NEUROLOGIC[2, 5]				
Comprehensive neurologic evaluation: assess neurologic function and frequency of headaches	●		●	
Developmental assessment: monitor developmental progress and educational needs (evaluation for early intervention/special education)	●	●		
Document baseline degree of cognitive impairment including motor, adaptive, cognitive, and speech/language	●		● Every 6 months in children; every 12 months in adults	
Swallowing assessment in all patients at risk*: document presence of dysphagia and aspiration	●		● Every 6 months in children; every 12 months in adults (if asymptomatic and disease is stable)	
Peripheral neuropathy	●		●	
Neuropsychology	●		●	

LSM AS A BIOMARKER FOR ASMD

- LSM is the most specific biomarker in ASMD to date.[2]
- LSM appears to be a valuable biomarker for overall ASMD disease severity.[2]
- In a cross-sectional study of 28 patients with ASMD, plasma LSM levels were elevated in all patients with ASMD compared to the normal reference range (0.04-3.8 ng/mL). Among patients with ASMD types A/B and B, a positive relationship was observed between LSM levels and clinical severity (mild > moderate > severe).[11]

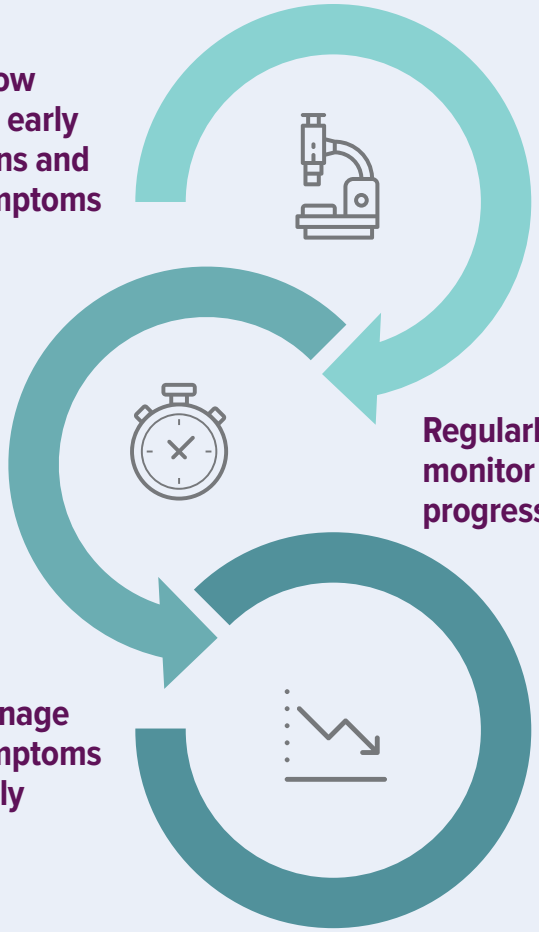
ASMD is a potentially life-threatening disease that may lead to early mortality in both adult and pediatric patients.[1,12]

*Patients with neuronopathic ASMD.

MONITOR YOUR ASMD PATIENTS REGULARLY FOR NEW AND WORSENING SYMPTOMS

Multisystemic ASMD symptoms can result in severe damage over time. Regular monitoring can make a positive difference.[1,2,10]

- ASMD affects multiple organs, with significant clinical heterogeneity across the disease spectrum.[5]
- Regular monitoring by a multidisciplinary clinical team is required to assess disease progression and enable appropriate symptom management.[2]



APRIL
Living with ASMD type B

Register at **ASMDfacts.com/hcp** to stay up to date on ASMD.

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