MORQUIO A: EARLIER DIAGNOSIS

Refer patients to a geneticist for testing as soon as Morquio A is suspected9

Earlier diagnosis of Morquio A may improve long-term patient outcomes2

The nonclassical phenotype of Morquio A can be easily missed, even among specialists1

Nonclassical patients that present with joint pain, laxity, or contractures, and no systemic or local signs of inflammation may have Morquio A9

A geneticist can perform a GALNS enzyme activity analysis to rule out or confirm a diagnosis of Morquio A9

Rule out or confirm Morquio A with an enzyme activity analysis9

**MORQUIO A: RECOGNISING THE SIGNS**

Morquio A is a progressive genetic disease with a multisystemic impact.

Morquio A (mucopolysaccharidosis [MPS] IVA) is an extremely rare autosomal recessive lysosomal storage disorder (LSD), caused by deficiency in the enzyme N-acetylgalactosamine-6-sulfatase (GALNS).

- Deficient enzyme activity leads to an accumulation of glycosaminoglycans (GAGs), primarily in the bones and joints, causing progressive multisystemic and musculoskeletal complications.
- High degree of genetic heterogeneity may be responsible for the wide spectrum of phenotypic presentations.
  - Over 277 mutations have been identified encoding the GALNS gene.

**Diverse presentations of Morquio A can complicate patient identification**

**Nonclassical musculoskeletal presentation can include the following**:
- Potential height of > 140 cm
- Hip stiffness and pain
- Lack of overt skeletal presentation

**Classical musculoskeletal presentation can include the following**:
- Height of < 120 cm
- Overt spinal and skeletal abnormalities
- Joint laxity
- Genu valgum

In an international Morquio A registry, 25% of patients with Morquio A have a nonclassical phenotype.

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**MORQUIO A: RECOGNISING THE PATIENT**

Rheumatologists are in a unique position to identify Morquio A earlier.

Bone and joint related manifestations are common in the very early stages of MPS, including Morquio A, and patients often visit a rheumatologist before being diagnosed.

Common bone and joint manifestations include:
- Reduced hand function
- Joint laxity
- Carpal tunnel syndrome

The following diagnostic algorithm is recommended for the evaluation of any patient with joint pain, stiffness, or contractures, and no systemic or local signs of inflammation:

1. **Joint contractures?**
   - **YES**
   - **Evolving?**
     - **YES**
     - **Obvious inflammation?** (redness, swelling, effusion)
       - **NO**
       - **Other evidence of inflammation?**
         - Fever, elevated ESR
         - Elevated ANA
         - Pain proportional to degree of stiffness
         - Being responsive to NSAIDs
       - **NO**
     - **Consider MPS**
       - **YES**
     - **Refer patient to geneticist for appropriate testing**
     - **NO**

2. **Evolving joint pain in the absence of inflammation should raise the suspicion of an MPS disorder.**

ANA, antinuclear antibodies; ESR, erythrocyte sedimentation rate; NSAIDs, nonsteroidal anti-inflammatory drugs.

Adapted from *Rheumatology*. 2011;50:v41-v48.