AMYLOID PROTEIN IDENTIFICATION

ACCURATE TYPING OF AMYLOIDOSIS IS OF PARAMOUNT IMPORTANCE FOR TIMELY, EFFECTIVE AND COST-EFFICIENT DISEASE MANAGEMENT

Amyloidosis is a systemic disease characterized by abnormal deposition of misfolded proteins in extracellular sites in a physical form that is resistant to normal degradation processes. The disease can be systemic and life-threatening, frequently affecting vital organs such as the kidneys or the heart. At least 25 different proteins have been shown to cause amyloidosis, and the underlying pathogenesis of each type of amyloidosis is unique.

HEALTH CARE VALUE EQUATION

- The management of amyloidosis is based on treatment of the underlying cause of abnormal deposition of proteins in extracellular sites.
- The treatment approaches for different types of amyloidosis may be radically different. For example, amyloid light-chain (AL) amyloidosis is caused by abnormal immunoglobulin light chain produced by a plasma cell neoplasm that may be treated by chemotherapy and stem cell transplantation. Hereditary ATTR amyloidosis is caused by a mutation in the transthyretin (TTR) gene and may be treated by liver transplantation.
- Given the risks associated with amyloidosis and different types of treatment, accurate typing of amyloidosis is of paramount importance for timely, effective and cost-efficient disease management.

TEST INFO

Cardiac biopsy with ATTR amyloidosis. A. In this hematoxylin and eosin-stained section, the amyloid deposits stain pale pink. B. Congo red stain showing bright red amyloid deposits. C. Congo red-stained section viewed under ultraviolet light. The Congophilic deposits give bright red fluorescence confirming amyloid deposition. The diseased area is outlined, laser microdissected, and analyzed for proteins involved in amyloidosis. D. Congo red-stained section viewed under polarized light. Congophilic deposits are characterized by green birefringence.
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Mayo Clinic has developed a novel diagnostic methodology that can type amyloid proteins in routine biopsy specimens with high accuracy. This method combines specific sampling of the Congo red-positive amyloid plaques by laser microdissection (LMD) with the analytical power of tandem mass spectrometry (MS/MS)–based proteomic analysis. In the clinical validation set, the LMD-MS/MS method identified the amyloid type with 100% specificity and high sensitivity. This provides a major improvement over previous, widely used methods such as immunohistochemistry, which provides lower sensitivity and specificity (40–80%). LMD-MS/MS is considered by many to be the current gold standard for amyloid protein identification.


WHICH TEST SHOULD BE ORDERED?

- Amyloid Protein Identification, Paraffin, LC MS/MS (Mayo ID: AMPIP)

ADDITIONAL AMYLOIDOSIS TESTS

- Amyloidosis, Transthyretin-Associated Familial, Reflex, Blood (Mayo ID: TTRX)
- TTR Gene, Full Gene Analysis (test ID: ATTRZ)
- Familial Mutation, Targeted Testing (Mayo ID: FMTT)

FOR MORE INFORMATION, INCLUDING METHOD DESCRIPTION, SPECIMEN REQUIRED, AND TRANSPORT TEMPERATURE REQUIRED, VISIT:

MayoMedicalLaboratories.com/amyloid
800-533-1710

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