EmblemHealth

Genetic Testing for Alzheimer's disease

Last Review Date: October 12, 2018	Number: MG.MM.LA.31C3

Definitions

Alzheimer's disease (AD) is a progressive and fatal form of dementia. AD can be idiopathic but is commonly associated with a family history as 40% of patients with AD have a least one other afflicted first-degree relative. Genes associated with AD include Amyloid AB precursor gene, apolipoprotein E gene, Presenilin 1 gene and Presenilin 2 gene. Genetic mutations are rare causes of AD and majority of cases present as late-onset. AD is clinically diagnosed by excluding other causes of senile dementia.

Guideline

Genetic testing for Alzheimer's disease is considered investigational and not medically necessary for all indications of the disease.

Applicable Procedure Codes

81401	Molecular pathology procedure, Level 2 (eg, 2-10 SNPs, 1 methylated variant, or 1 somatic variant [typically using nonsequencing target variant analysis], or detection of a dynamic mutation disorder/triplet repeat) LINC00518 (long intergenic non-protein coding RNA 518) (eg, melanoma), expression analysis PRAME (preferentially expressed antigen in melanoma) (eg, melanoma), expression analysis (Revision eff. 01/01/2018)
81405	Molecular pathology procedure, Level 6 (eg, analysis of 6-10 exons by DNA sequence analysis, mutation scanning or duplication/deletion variants of 11-25 exons, regionally targeted cytogenomic array analysis) CPOX (coproporphyrinogen oxidase) (eg, hereditary coproporphyria), full gene sequence CTRC (chymotrypsin C) (eg, hereditary pancreatitis), full gene sequence PKLR (pyruvate kinase, liver and RBC) (eg, pyruvate kinase deficiency), full gene sequence (Revision eff. 01/01/2018)
81406	Molecular pathology procedure, Level 7 (eg, analysis of 11-25 exons by DNA sequence analysis, mutation scanning or duplication/deletion variants of 26-50 exons, cytogenomic array analysis for neoplasia) ANOS1 (anosmin-1) (eg, Kallmann syndrome 1), full gene sequence HMBS (hydroxymethylbilane synthase) (eg, acute intermittent porphyria), full gene sequence PPOX (protoporphyrinogen oxidase) (eg, variegate porphyria), full gene sequence (Revision eff. 01/01/2018)
83520	Immunoassay for analyte other than infectious agent antibody or infectious agent antigen; quantitative, not otherwise specified
84999	Unlisted chemistry procedure

S3852	DNA analysis for APOE epsilon 4 allele for susceptibility to Alzheimer's disease

References

1. Albert MS, DeKosky ST, Dickson D et al. The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement 2011; 7(3):270-9.
2. American College of Medical Genetics/American Society of Human Genetics. Statement on use of apolipoprotein E testing for Alzheimer disease. American College of Medical Genetics/American Society of Human Genetics Working Group on ApoE and Alzheimer disease. JAMA 1995; 274(20):1627-1629.
3. Andreasen N, Blennow K. CSF biomarkers for mild cognitive impairment and early Alzheimer's disease. Clinical Neurol Neurosurg. 2005; 107:165-173
4. Goldman JS, Hahn SE, et al. Genetic counseling and testing for Alzheimer's disease: Joint practice guidelines of the American College of Medical Genetics and the National Society of Genetic Counselors. Genet Med, 2011 Jun; 13(6):597-605.
5. Kapaki E, Liappas I. Paraskevas GP, et al. The diagnostic value of tau protein, beta-amyloid (1-42) and their ration for the discrimination of alcohol-related cognitive disorders from Alzheimer's disease in the early stages. Internat J Geriatric Psych. 2005; 20:722-729.
6. Lane R, Feldman HH, Meyer J, He Y, et al. Synergistic effect of apolipoprotein E epsilon4 and butyrylcholinesterase K-variant on progression from mild cognitive impairment to Alzheimer's disease. Pharmacogenet Genomics. 2008; 18(4):289-298.
7. McKhann GM, Knopman DS, Chertkow H et al. The diagnosis of dementia due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement 2011; 7(3):263-9.
8. McKhann GM, Knopman DS, Chertkow H, et al. The diagnosis of dementia due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement. 2011; 7(3):263-269.
9. Motter R, Vigo-Pelfrey C, Kholodenko D, et al. Reduction of beta-amyloid peptide42 in the cerebrospinal fluid of patients with Alzheimer's disease. Ann Neurol. 1995; 38(4):643-648.
10. National Institute on Aging/Alzheimer's Association. Apolipoprotein E genotyping in Alzheimer's disease. National Institute on Aging/Alzheimer's Association Working Group. Lancet 1996; 347(9008):1091-1095.
11. Waldemar G, Dubois B, Emere M, Georges J, et al. Recommendations for the diagnosis and management of Alzheimer's disease and other disorders associated with dementia: EFNS guideline. Eur J Neurology, January 2007; 14(1): e1-26