ALS

Main points

ALS (Amyotrophic Lateral Sclerosis), also known as Lou Gehrig's disease. It's a progressive neurodegenerative disorder that affects nerve cells in the brain and the spinal cord.

Aspect	Details
Symptoms	The disease leads to muscle weakness, atrophy, and eventually paralysis. Early symptoms often include muscle twitching, cramping, stiffness, or weakness, particularly in the arms and legs.
Cause	The exact cause of ALS is unknown in most cases, though a small percentage of cases are inherited through mutations in certain genes (familial ALS).
Diagnosis	Diagnosis is primarily clinical, based on symptoms and the progression of the disease, often supported by electromyography (EMG) and nerve conduction studies (NCS).
Treatment	There is no cure for ALS, but treatments such as Riluzole and Edaravone can slow the progression of symptoms.
Prevalence	ALS is relatively rare, with an incidence of about 2 per 100,000 people annually.
Prognosis	The prognosis varies; however, the average life expectancy after diagnosis is 2-5 years, though some people live much longer.
Famous Cases	Lou Gehrig, the famous baseball player, and Stephen Hawking, the renowned physicist, are among the most well-known individuals diagnosed with ALS.

What is the % of population suffering ALS?

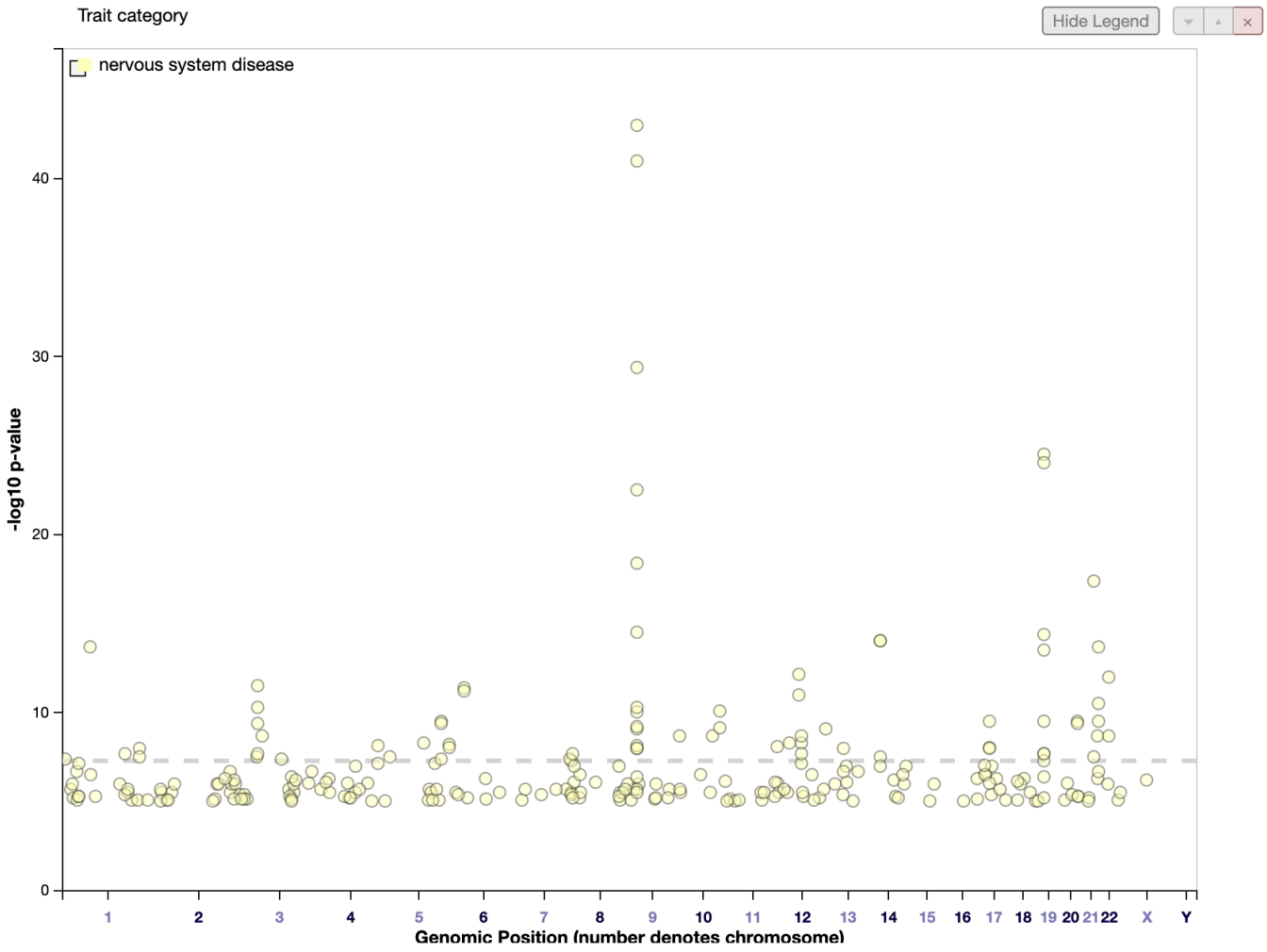
An estimated 29,824 cases were identified, for an adjusted prevalence of 9.1 per 100,000 U.S. population. The demographics of cases of ALS did not change from previous year’s reports. ALS continues to impact Whites, males, and persons over 50 years of age more so than other comparison groups. [PMID: **37602649**]

What is the total number of GWAS studies targeting ALS?

According to GWAS catalog, there are 41 studies related to ALS mainly in Europe. Approximately 15 risk loci have been identified that are associated with ALS susceptibility. [PMID: **35042540**]

What is the total number of ALS GWAS SNPs?

According to GWAS catalog: 346 associations.



is there early-stage of ALS?

Most cases of ALS begin between the ages of 40 and 70, with an average age of onset around 55 years old. Though less common, ALS can also occur in younger individuals. Cases have been reported in people as young as in their 20s and 30s.

Recent gene/mutations studies

KIF5A has been on the radar for a while. It popped up as an ALS candidate gene in several previous analyses, but never reached genome-wide significance (Kenna et al., 2016). That changed when first authors Aude Nicolas, Alan Renton, Faraz Fagrhi, and Ruth Chia at NIH genotyped single nucleotide polymorphisms (SNPs) among 20,806 people with ALS and 59,084 controls. They uncovered five SNPs spanning several hundred kilobases on chromosome 12 that achieved genome-wide significance. Four occurred in noncoding DNA, with the fifth landing in the coding region for KIF5A, changing a proline at position 986 to a leucine. The leucine variant increased the risk of ALS a modest 1.38-fold. The association held up in an independent replication set and in a meta-analysis of combined genotyping data from 103,549 people. The GWAS also confirmed five previously identified ALS risk genes: TNP1, C9ORF72, TBK1, UNC13A, and C21ORF2.