

Having Huntington's disease or other 'polyQ' diseases protects against cancer, suggesting common genetic mechanism

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Having Huntington's disease or other diseases known as polyglutamine (polyQ) diseases reduces a person's risk of getting cancer, suggesting a common genetic mechanism, concludes an Article published Online First by The *Lancet Oncology*. The study is by Dr Jianguang Ji, Lund University, and Skåne University Hospital, Malmö, Sweden, and colleagues.

The polyglutamine (polyQ) diseases belong to a group of rare neurodegenerative disorders that are characterised by the expansion of certain sequence repeats (Cystosine-Adenine-Guanine or CAG) in specific genes. Nine diseases have been identified: [Huntington's disease](#) (HD), spinobulbar muscular atrophy (SBMA), dentatorubral and pallidoluysian atrophy, and six types of spinocerebellar ataxia. All patients with polyQ diseases present with progressive degeneration of a population of neurons in the central nervous system that are involved in motor control.

In these diseases, polyglutamine-containing proteins accumulate in the cytoplasm, nucleus, or both, and interact with numerous transcription factors, which impedes the activity of many genes. Eventually, accumulation leads to dysfunction of the cellular machinery and to cell death. The authors postulate that this same mechanism could possibly reduce the development of [cancer](#) in these patients. Thus they investigated data from the Swedish cancer registry.

During the period January, 1969, to December, 2008, the authors identified 1510 patients with HD, 471 with SBMA, and 3425 with hereditary ataxia (HA, analysed as a surrogate of spinocerebellar ataxia). Cancer was diagnosed in 91 HD patients (6%), 34 SBMA patients (7%), and 421 HA patients (12%). The chances of being diagnosed with cancer were 53% lower in HD patients, 35% lower in SBMA patients, and 23% lower in HA patients compared with the general population. Before diagnosis of a polyQ disease, the risk of cancer was even lower. Cancer risk in the unaffected parents of patients with polyQ diseases was similar to that in the general population.

The authors conclude: "Our findings suggest a common mechanism in patients with polyQ diseases that protects against the development of cancer, and expansion of the polyglutamine tracts seems likely... Future studies should investigate the specific biological mechanisms underlying the reduced cancer risk in [patients](#) with polyQ diseases."

More information: [www.thelancet.com/journals/lan ... \(12\)70132-8/abstract](http://www.thelancet.com/journals/lan... (12)70132-8/abstract)

Provided by Lancet

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