



## Anti-acetylcholine receptor autoantibodies (ganglionic AChR)

### Indications

- ▶ Dysautonomia
- ▶ Postural orthostatic tachycardia syndrome (POTS), orthostatic hypotension
- ▶ Inappropriate sinus tachycardia (IST), vasovagal syncope
- ▶ Pure autonomic failure
- ▶ neurocardiogenic syncope (NCS), neurally mediated hypotension (NMH)

### see also

- ▶ [Autoantibodies in disease of neuromuscular transmission](#)
- ▶ [Autoantibodies in paraneoplastic neuropathies](#)
- ▶ [Autoantibodies in peripheral neuropathies](#)
- ▶ [Autoantibodies in autonomic Neuropathies - Dysautonomias](#)
- ▶ [Acetylcholinreceptor autoantibodies \(muscular AChR\)](#)

Nicotinic acetylcholine receptors (nAChR) are ligand-gated cation channels that are present throughout the nervous system. Antibodies against the  $\alpha 3$ -subunit of ganglionic nicotinic acetylcholine receptors are found in about 50% of patients suffering from an autoimmune autonomic gangliopathy (AAG). The serum levels of AChR-binding antibodies correlate with the severity of autonomic failure and a reduction of antibodies in the serum by means of plasma exchange or immunosuppression is followed by improvement in autonomic function. An animal model of the disease can be induced by active immunization of rabbits with ganglionic AChR and by passive administration of rabbit and human antibodies into mice. The antibodies inhibit in a dose-dependent manner the signal transfer of ganglionic AChR in neuroblastoma cells. It is unclear, which factors regulate the expression of different autonomic symptoms of the disease in patients and if other unknown antibodies against ganglionic receptors or antibodies against other structures engaged in autonomic signal transduction are also involved in different subgroups of the disease.

### Literature

Seelig HP: Autoantibodies against ganglionic acetylcholine receptors and autoimmune autonomic gangliopathy. *Nervenheilkunde* (2009); 28: 801 - 807.