Post-polio syndrome/post-polio muscular atrophy (PPS/PPMA) and amyotrophic lateral sclerosis (ALS) are progressive neurodegenerative disorders characterized by motor neurons (MNs) loss in the spinal cord, brain stem and motor cortex. PPS/PPMA is regarded as ALS-mimic syndrome. About 1% of patients with history of paralytic polio have been reported to develop ALS as coincidental findings.

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**Etiopathogenesis**

**PPS/PPMA**
- Unclear, not fully understood
- Multifactorial: various pathological factors connected with progressive MNs stress, accompanied by age-dependent risk factors.

**ALS**
- Largely unclear
- Multifactorial: various endogenous and/or environmental factors implicated in progressive MNs stress

**Clinical symptoms**

**PPS/PPMA**
- Progressive weakness and muscular atrophy (mainly due to lower MNs involvement)
- Muscle pain and joint pain
- Often fear, anxiety, rarely depression

**ALS**
- Progressive weakness and muscular atrophy (due to upper and lower MNs involvement)
- Bulbar symptoms (dysarthria, dysphagia, respiratory failure)
- Muscle pain and muscle cramps
- Often fear, anxiety and depression

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**Neuropathology**

(Only a few autopsy findings so far reported)

**PPS/PPMA**
- Loss of MNs in the anterior horn mainly of lower spinal cord (1), rarely upper spinal cord and/or brain stem
- Lack of degeneration of corticospinal tract
- Gliosis (2)
- Inflammatory B cells infiltrates, often perivascular
- Neuronal inclusions are not typical features, spheroids were seen occasionally (3)

**ALS**
- Loss of MNs in the anterior horn of lower and upper spinal cord (4), brain stem, motor cortex
- Degeneration of corticospinal tract
- Widespread gliosis
- Lack of inflammatory changes
- A variety of neuronal inclusions i.e. spheroids, Lewy-body-like inclusions (5), Bunina bodies, hyaline inclusions (6) and skein-like, ubiquitin or TDP43-immunoreactive inclusions (7)

*The main pathology is similar to late period of poliomyelitis*

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**Diagnosis**

**PPS/PPMA**
- Exclusion of other neurological conditions with similar symptoms.
- There are not specific tests and biomarkers to confirm the diagnosis

**ALS**
- Exclusion of other neurological conditions with similar symptoms.
- There are not diagnostic tests or procedures useful to confirm or exclude the diagnosis

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**Prognosis**

**PPS/PPMA**
- Usually slowly progressive course

**ALS**
- Rapidly progressive, devastating, fatal disease
- Life expectancy is usually 3-5 years after diagnosis

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**Treatment**

**PPS/PPMA**
- Lack of effective drug treatment (only IVIG)
- Supportive care - multidisciplinary teams of healthcare
- Individually tailored training programs
- Occasionally ventilatory assistance

**ALS**
- Lack of effective drug treatment (only riluzole)
- Supportive care - multidisciplinary teams of healthcare
- Individually tailored training programs
- Respiratory assistance and supplemental nutrition at early stages of the disease.

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*The distinction between PPS and ALS bears important prognostic implications. Both these motor neuron diseases still remain a challenge for clinical and scientific community.*