

Differential Diagnosis

One of the challenges facing health professionals attempting to evaluate and manage post-polio individuals with new health problems is the general nature of many of the symptoms.¹¹⁸ The differential diagnosis of PPS is complex, as there are many conditions that could be responsible for the primary symptoms of fatigue, weakness and pain that a patient may experience.

In developing a differential diagnosis, the Post-Polio Task Force (1999)¹¹⁹ suggest defining each presenting complex (i.e. fatigue, weakness and pain), in terms of:

- Characteristics;
- Onset/duration;
- Location; and
- Activities that increase or decrease symptoms.

Fatigue

Fatigue is often a non-specific complaint with a variety of possible aetiologies. As a result, before a diagnosis of PPS fatigue is made, it is necessary to exclude other conditions that can cause this symptom.

Some of the conditions that need to be considered in the differential diagnosis of fatigue include:¹¹⁹

Systemic metabolic disease:

- Hypothyroidism
- Cancer / chemotherapy
- Anaemia
- Cardiac conditions – coronary heart disease, heart failure
- Diabetes mellitus
- Chronic infection
- Renal disease
- Lupus
- Thyroid disease
- Hepatic disease

Ventilatory dysfunction:

- Sleep apnoea
- Chronic alveolar hypoventilation
- Hypoxaemia

Mood disorders:

- Depression
- Anxiety / stress

For any patient presenting with potential PPS, it is important that the characteristics, time of fatigue and the activities that produce fatigue are recorded. This information assists in determining the cause of the problem. Fatigue that is reported upon awakening usually reflects sleep disturbances that may be caused by various factors (Refer to section on sleep disturbances). Fatigue that lasts throughout the day is not typical of PPS and may indicate other conditions, e.g. chronic fatigue syndrome.

Other evaluation tests that should be considered when diagnosing the cause of fatigue include:

- Physical examination of the individual;
- Blood chemistries – complete blood count;
- Arterial blood gas;
- Thyroid function;
- Chest X-ray;
- Electrocardiogram;
- Pulmonary function test;
- Overnight oximetry and sleep studies; and
- Psychological assessment.

Weakness

Weakness is the cardinal sign of motor neuron dysfunction in PPS. Therefore, the exclusion of other causes of new weakness is essential. For many of the conditions that result in weakness, specific assessment procedures and tests are available and accurate diagnosis can usually be made. While determining the cause of weakness, it is important to remember that these conditions can occur in addition to PPS.

Some of the conditions that need to be considered in the differential diagnosis of weakness include:¹¹⁹

Superimposed neurological conditions:

- Inflammatory demyelinating disease
- Late onset genetic dystrophies
- Adult spinal muscular atrophy
- Inflammatory myopathies
- Amyotrophic lateral sclerosis
- Cerebrovascular disease
- Multiple sclerosis
- Parkinson's disease
- Spinal stenosis
- Myasthenia gravis
- Radiculopathies
- Neuropathies
- Entrapment neuropathies
- Cauda equina syndromes
- Spinal cord tumours and infarctions
- Diabetic amyotrophy

Overuse or chronic strain:

- Joint / spine deformities
- Weight gain
- Lifestyle activity patterns

Systemic comorbid medical conditions:

- Thyroid disease
- Uraemia
- Toxins

Disuse atrophy:

- Injury
- Weight gain
- Surgery

An individual with neurogenic weakness caused by PPS often experiences a pattern of diminished strength, endurance and function at a time when there have been no obvious changes in their usual level or intensity of activity. By contrast, individuals with disuse weakness often describe a clear change in the usual pace and intensity of their activity levels or in the way that individual muscles are used. This may occur due to a period of immobility due to hospitalisation, pain or illness. If disuse weakness is expected, a trial of monitored exercise should be prescribed to determine if this new weakness can be reversed.¹¹⁸

It is also important to differentiate between muscle weakness (loss of strength and endurance) and other synonymous terms the patient may be referring to, such as fatigue and lack of energy.⁵

Recommended procedures for the assessment of muscle weakness include:

- Physical examination of the individual – manual muscle assessment, range of motion, trials of strengthening exercise (as prescribed by a Physiotherapist);
- History – current and past muscle function and weakness;
- Analysis of current performance compared to performance in past;
- Blood chemistries – complete blood count, creatine kinase analysis;
- Thyroid function;
- Toxic metal screens;
- EMG / nerve conduction studies; and
- Specific neurological and medical assessments to assist in the diagnosis of other conditions which result in muscle weakness.

Pain

The number of disorders that produce pain is extensive. Assessment should commence with the identification of other conditions that could be producing pain which are commonly associated with chronic musculoskeletal wear and tear and disorders that have significant muscle and/or joint manifestations. The major areas of consideration include spinal orthopaedic conditions, fibromyalgia, muscle pain, musculotendinous conditions and limb joint conditions. Some of these conditions include:¹¹⁹

Spinal orthopaedic conditions:

- Myofascial pain syndromes
- Degenerative disc disease
- Radiculopathies
- Spondylolisthesis
- Spinal stenosis
- Scoliosis
- Chronic strain associated with leg length and gait abnormalities

Muscle pain:

- Overuse strain myalgia

Limb joint conditions:

- Internal derangements
 - Ligamentous laxity/hypermobility
 - Strain syndrome
- Degenerative arthritis
- Traumatic arthritis

Musculotendinous conditions:

- Tendonitis
- Bursitis
- Entrapment syndrome
- Repetitive strain/overuse

Fibromyalgia