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Inclusion Body Myositis

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► Diagnostic Criteria

Here are presented the diagnostic criteria for inclusion body myositis (IBM). These criteria are the result of a consensus Workshop organized by the Dutch Neuromuscular Research Support Centre in April 1996.

Criteria are defined as a combination of elements. Depending on the combination of elements which are fulfilled, the diagnosis of IBM can be definite, probable or possible.

None of the clinical or laboratory elements are by themselves pathognomonic for IBM. According to diagnostic criteria for IBM, published in 1995, a definite diagnosis of IBM depends completely on muscle biopsy features. None of the clinical or laboratory features were mandatory if the muscle biopsy was diagnostic¹. Recent reports, however, stress that IBM might have a characteristic pattern of muscle weakness, involving the quadriceps femoris muscles in the lower limbs and the forearm muscles, particularly the finger flexors, in the upper limbs^{2,3,4}. Therefore, it was decided that clinical features should have a more prominent role in the diagnostic criteria. The following diagnostic criteria include the possibility to make a diagnosis of definite IBM based on the typical pattern of weakness in combination with a muscle biopsy which shows inflammation and vacuolated fibres, but in which the presence of tubulofilaments or amyloid has not been demonstrated.

Elements

- 1 Muscular weakness is present^{1,5,6}.

Comment. Weakness can be present in proximal, as well as in distal limb muscles. Weakness usually starts in the lower limbs, involving particularly the quadriceps muscle. Occasionally dysphagia is the first symptom. Weakness is often asymmetrical. Facial muscles are involved in the disease process, but external eye muscles are spared. Myalgia is unusual, but can incidentally be present.

- 2 Weakness of the forearm muscles, particularly the finger flexor, and/or wrist flexor muscles more than the wrist extensor muscles, is typical in the disease. This has been reported as one of the first symptoms, even before the disease process results in a more generalized weakness^{2,3,4}.
 Comment. The predominant involvement of these muscles is remarkable as compared to other muscle diseases, and can be a valuable diagnostic clue. Some recent studies report weakness in these muscles in about 80% of patients.
- 3 The disease has a slowly progressive course, during which the weakness extends to other muscles, including the facial muscles^{4,6}.
 Comment. The presence of signs and/or symptoms 5 years or more before a diagnosis of IBM is made is not exceptional: a range of 0.5 to 30 years has been reported in the literature⁷. Spontaneous stabilization of the disease has never been documented, but this possibility has not been excluded. Decreased or absent tendon reflexes can be found in weak muscles.
- 4 IBM is most often a disease of middle-aged or elderly men^{4,5}.
 Comment. About 80% of the patients are 50 years or older at the time of diagnosis. IBM can be found 2–4 times more often in males than females.
- 5 IBM is a sporadic disease^{1,5}.
 Comment. One report described an unusual type of IBM in two sisters. The muscle biopsies showed infiltrates, which are not found in familial inclusion body myopathy. The myositis improved during therapy with prednisolone and was described as ‘glucocorticoid-sensitive hereditary inclusion body myositis’⁸.
- 6 SCK is normal or mildly to moderately increased^{4,5}.
 Comment. SCK is most often 2–5-times normal, and in a minority of patients up to 12-times increased. In some atypical cases higher values have been reported⁹. In 10–20% of patients normal SCK activity is found.
- 7 Electromyography is ‘myopathic’ or ‘mixed neuromyopathic’. In a minority of patients electromyographic studies only have ‘neuropathic’ features.
 Comment. Fibrillation potentials and/or positive sharp waves can be recorded in most patients. In most patients motor unit potentials are ‘myopathic’ (small/short), but ‘neuropathic’ (large/long) potentials can occur. A mild decrease of nerve conduction velocity does not exclude a diagnosis of IBM.
- 8 A muscle biopsy shows mononuclear inflammatory cellular infiltrates, located predominantly or exclusively in the endomysium, and invasion of non-necrotic muscle fibres by mononuclear cells^{10,11}.
 Comment. Necrotic muscle fibres can be present; atrophic, often angular, muscle fibres are common; eosinophilic inclusions in the sarcoplasm may be found. There is controversy if muscle fibres from patients with IBM do express HLA-type 1 molecules^{12,13}.
- 9 Some non-necrotic muscle fibres contain rimmed vacuoles (at least 1 per 1000 muscle fibres)^{5,14}.
 Comment. Vacuoles often contain, or are rimmed by, basophilic material. Some authors describe amyloid in non-necrotic vacuolated muscle fibres, using a fluorescent Congo-red staining method.
- 10 Vacuolated muscle fibres contain cytoplasmic tubulofilaments, with diameters of about 16–21 nm. Similar tubulofilaments are also found in the nucleus¹.
- 11 In muscle biopsies of IBM patients ragged red fibres can be found^{1,15}.
 Comment. Paracrystalline structures can be found in muscle mitochondria.
- 12 Immunosuppressive treatment does not result in stabilization or remission of the disease process^{4,5,6,16,17}.

Comment. Some reports indicate that patients may benefit from prolonged treatment^{9,18}.

- 13 Inclusion body myositis occurs in association with other, especially auto-immune, diseases such as systemic lupus erythematoses, mixed connective tissue disease, scleroderma, idiopathic thrombocytopenic purpura, thyroid dysfunction, sarcoidosis^{5,19}.

Assessment

The diagnosis is **definite** when:

- a 1, 2, 3, 5, 8, 9 or 1, 3, 5, 8, 9, 10 are fulfilled.
- b 12 confirms the diagnosis.
- c 4, 6, 11, and 13 are compatible with the diagnosis.

The diagnosis is **probable** when:

- a 1, 2, 3, 5, 8 or 1, 3, 5, 8, 9 are fulfilled.
- b 4, 6, 11, 12, 13 are compatible with the diagnosis.

The diagnosis is **possible** when:

- a 1, 3, 4, 8, 12 are fulfilled.
- b 4, 6, 13 are compatible with the diagnosis.

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