

Sporadic Inclusion Body Myositis and anti-CN1A antibodies: possible relationship with clinical severity in a single centre Italian cohort

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Background

Sporadic Inclusion Body Myositis (s-IBM) is a late-onset acquired inflammatory myopathy characterized by knee extensors and finger flexors weakness and dysphagia with progressive course and no response to anti-dysimmune therapy. A diagnostic delay of several years is very frequent for s-IBM patients, often misdiagnosed with other late-onset myopathies. Recently, autoantibodies directed against cytosolic 5'-nucleotidase 1A (anti-CN1A) were found in serum of 30 to 70% sIBM patients, depending on detection method and cut-off values. Different studies in small cohorts of patients suggested a possible clinical correlation between anti-CN1A positivity and a more severe clinical picture.

Objectives

(i) To investigate the prevalence of anti-CN1A in our cohort of sIBM; (ii) to evaluate a potential correlation between anti-CN1A and clinical severity, age and disease duration; (iii) to evaluate the concordance of two different clinical scales and their correlation with disease duration.

Methods

We collected serum and clinical data of 14 s-IBM patients (five female, seven male) attending our clinic. First, we analysed serum with a commercial ELISA kit to detect anti-CN1A presence. Second, we clinically evaluated patients with the following scales: IBM functional rating scale (IBMFRS ranging from 0 to 40) and sporadic IBM weakness composite index (IWCI ranging from 0 to 100).

	Sesso	Età	Durata	IWCI	IBMFRS	Anti-CN1A
sIBM1	F	72	10	50	21	+
sIBM2	M	65	3	75	30	-
sIBM3	M	81	12	55	23	-
sIBM4	F	76	14	25	8	+
sIBM5	F	59	7	75	34	+
sIBM6	F	53	3	60	27	-
sIBM7	M	69	10	60	24	+
sIBM8	M	66	3	60	22	+
sIBM9	M	70	25	30	14	-
sIBM10	F	50	4	70	28	-
sIBM11	M	70	2	70	27	+
sIBM12	F	73	3	70	29	-
sIBM13	F	67	27	30	11	+
sIBM14	M	52	2	60	21	+

Ab anti-CN1A and s-IBM

Sensibility: 57%
Specificity: 91%
PPV: 80%
NPV: 77%

Results

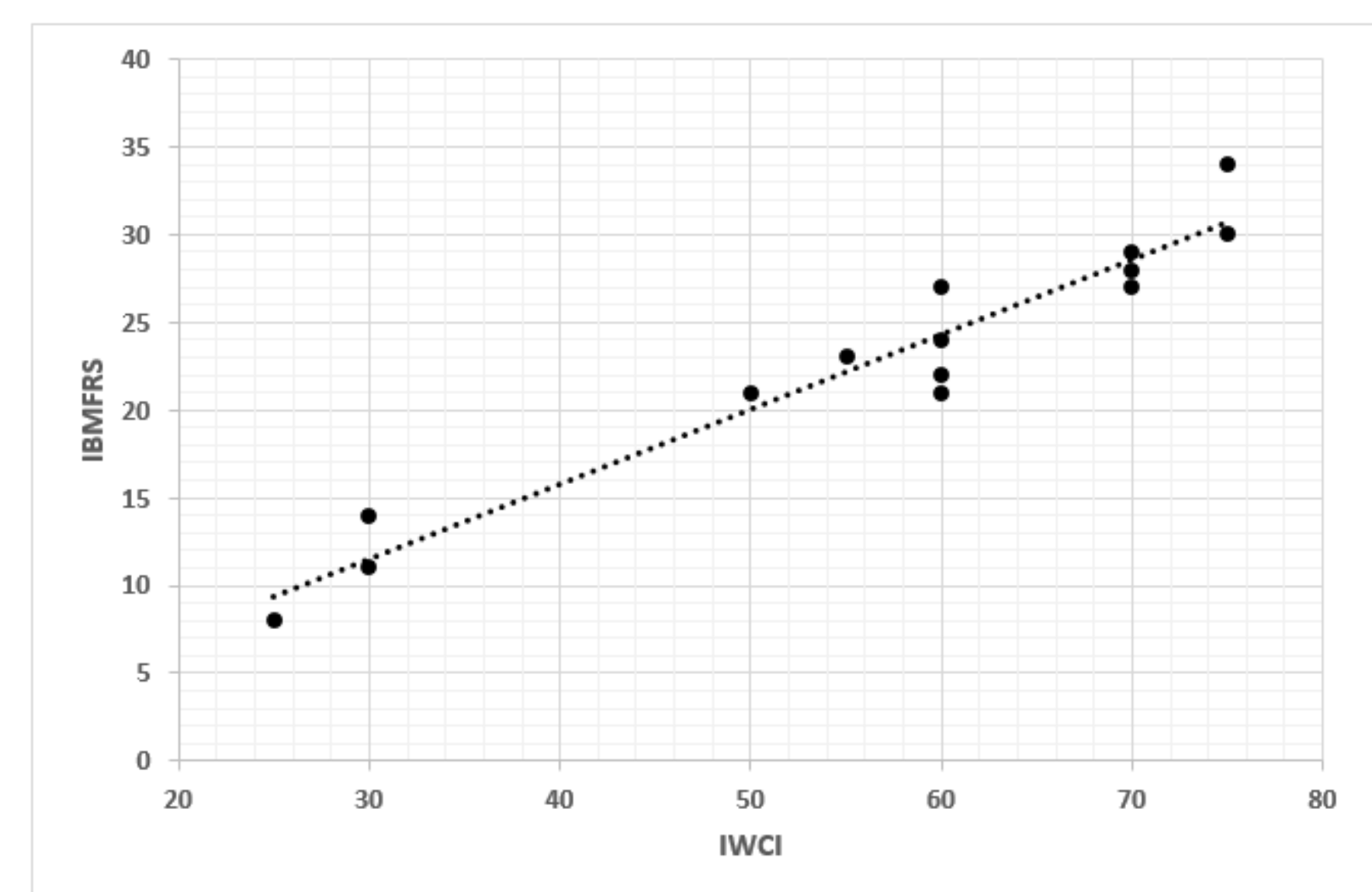
Mean age was 65.93±9.29 years. Mean duration disease was 8,93±8,26 years. Mean IWCI score was 60.83±13.79. Mean IBMFRS score was 24.50±6.54.

57% (8 out of 14) patients were positive for anti-CN1A. We did not find correlation between age, age at onset and disease duration and anti-CN1A status. Anti-CN1A positive patients presented lower scores both on IWCI (53,75±17.88 vs 60.00±16.43) and IBMFRS scale (21.00±8.31 vs 25.17±5.98), but those differences did not reach statistical significance.

A linear regression analysis showed a significant correlation between IBMFRS and IWCI ($r^2=0,966$ $p<0.01$) scores and between IBMFRS and IWCI scores and disease duration ($r^2=-0.839$ $p<0.01$ and $r^2=-0,741$ $p<0.01$ respectively).

Discussion

This preliminary data confirm a rate of prevalence of anti-CN1A around 60%, higher than previously reported with the same detection test, and suggest a possible correlation between clinical severity and anti-CN1A status. IWCI and IBMFRS scores correlate with each other and with disease duration, representing good clinical tools easy to perform during routine visits.



1 Swallowing 4 Normal 3 Early eating problems- occasional choking 2 Dietary consistency changes 1 Frequent choking 0 Needs tube feeding	5 Dressing 4 Normal. 3 Independent but with increased effort or decreased efficiency. 2 Independent but requires assistive devices or modified techniques (Velcro, snaps, shirts, shirts without buttons, etc.) 1 Requires assistance from caregiver for some clothing items 0 Total dependence	9 Walking 4 Normal. 3 Slow or mild unsteady 2 Intermittent use of an device (AFO, cane w/ rail intermittently 1 Dependent on assist 0 Wheelchair dependent
2 Handwriting (with dominant hand prior to IBM onset) 4 Normal 3 Slow or sloppy; all words are legible 2 Not all words are legible 1 Able to grip pen but unable to write 0 Unable to grip pen	6 Hygiene (Bathing & Toileting) 4 Normal. 3 Independent but with increased effort or decreased activity 2 Independent but requires use of assistive devices (shower chair, raised toilet seat, etc) 1 Requires occasional assistance from caregiver 0 Completely dependent	10 Climbing Stairs 4 Normal. 3 Slow with hesitation o increased effort; uses rail intermittently 2 Dependent on hand r/ additional support (c/ person) 0 Cannot climb stairs
3 Cutting Food & Handling Utensils 4 Normal 3 Somewhat slow and clumsy, but no help needed 2 Can cut most foods although clumsy and slow; some help needed 1 Food must be cut by someone, but can still feed slowly 0 Needs to be fed	7 Turning In Bed & Adjusting Covers 4 Normal 3 Somewhat slow and clumsy but no help needed 2 Can turn alone or adjust sheets, but with great difficulty 1 Can initiate, but not turn or adjust sheets alone 0 Unable or requires total assistance	
4 Fine Motor Tasks (Opening doors, using keys & picking up small objects) 4 Independent 3 Slow or clumsy in completing task 2 Independent but requires modified techniques or assistive devices 1 Frequently requires assistance from caregiver 0 Unable	8 Sit to Stand 4 Independent (without use of arms) 3 Performs with substitute motions (leaning forward, rocking) but without use of arms 2 Requires use of arms 1 Requires assistance from a device or person 0 Unable to stand	

Measured parameters		
Arms: outstretched forwards (s)		
150	15	
100	10	
50	5	
<50	0	
Legs held outstretched at 45° supine (s)		
75	15	
50	10	
25	5	
<25	0	
Neck flexors, lying in bed		
Against resistance	10	
Without resistance	5	
Impossible	0	
From lying in bed to standing		
Without support	10	
With support	5	
Impossible	0	
Walk		
Normal	10	
With cane(s) or walker	5	
Impossible (wheelchair)	0	
From sitting position in a chair to standing		
Without support	10	
With support	5	
Impossible	0	
Force of finger flexors		
MRC = 5	10	
MRC = 3 or 4	5	
MRC = 0, 1 or 2	0	
Force of the quadriceps		
Normal (MRC = 5/5)	10	
Decreased (MRC = 3 or 4)	5	
Weak (MRC = 0, 1 or 2)	0	
Swallowing		
Normal	10	
Moderate or intermittent difficulties	5	
Severe or permanent difficulties	0	
Total	/100	

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