

INTRODUCTION

Botulinum toxin type A (BT-A) is effective in reducing focal spasticity. A few data, instead, are available on its efficacy in improving motor function and quality of life, mostly in Multiple Sclerosis (MS) patients. It is also known that physiotherapy treatment is very useful for the optimization of the BT-A therapeutic result, but international guidelines are lacking. The objective of reducing MS patient disability has to go through a correct timing for BT-A and the consequent physiotherapy treatment as well as an adequate and realistic individuation of the specific target.

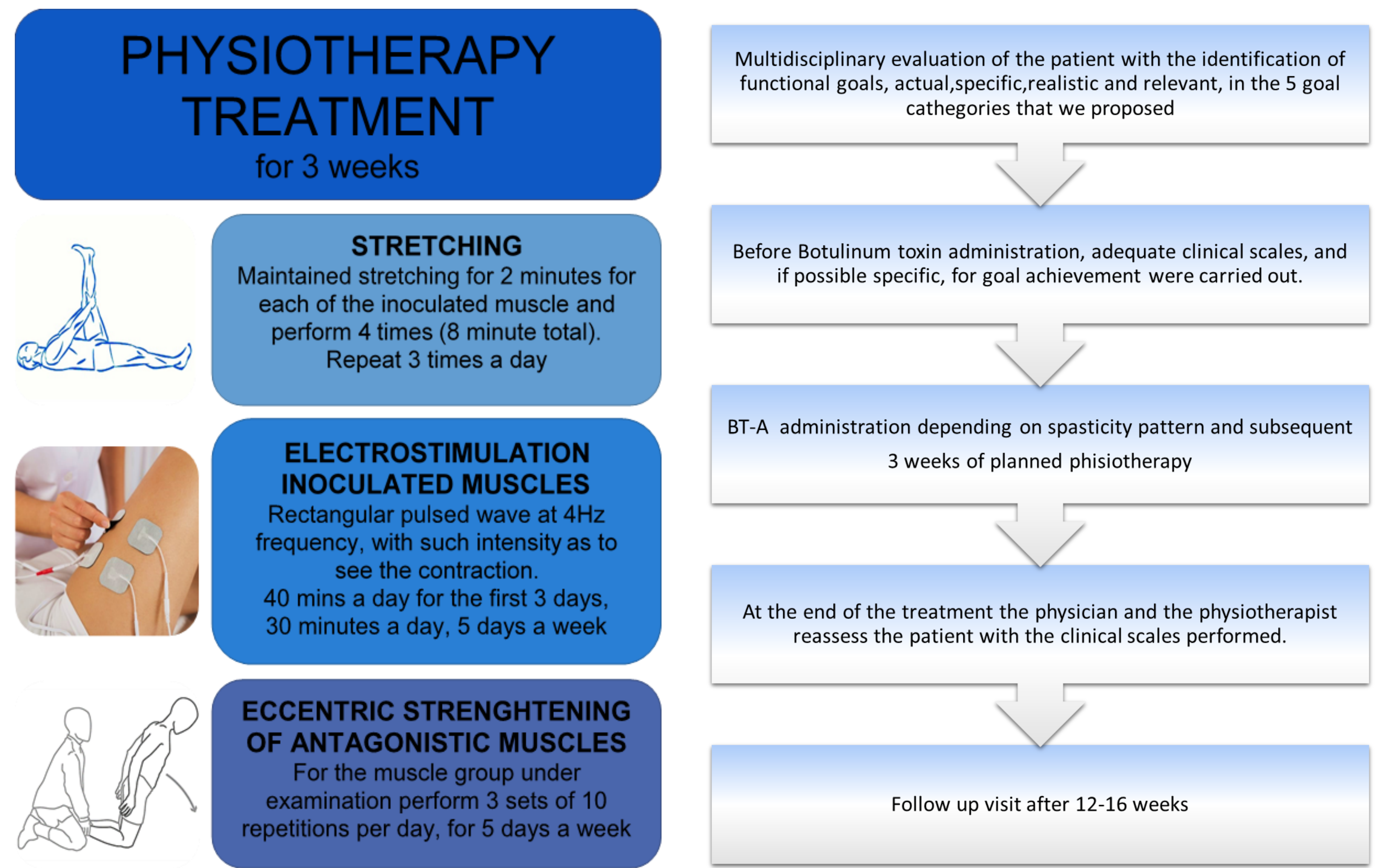
MATERIALS AND METHODS

A longitudinal prospective study was drawn. A specific and personalized treatment goal was defined for each patient; a rehabilitative program was planned and BT-A was administered depending on the spasticity pattern. Based on the injected muscles a specific physiotherapy scheme was drawn. The evaluation of the adequate achievement of the target was done at week 4 using the Goal Attainment Scale (GAS) and specific clinical scales depending on goal type.

OBJECTIVE

to assess the level of achievement of the predefined goals in MS patients with focal spasticity through an integrated and standardized approach with BT-A and physiotherapy.

Flow Chart



PHYSIOTHERAPY TREATMENT

for 3 weeks



STRETCHING

Maintained stretching for 2 minutes for each of the inoculated muscle and perform 4 times (8 minute total). Repeat 3 times a day



ELECTROSTIMULATION INOCULATED MUSCLES

Rectangular pulsed wave at 4Hz frequency, with such intensity as to see the contraction. 40 mins a day for the first 3 days, 30 minutes a day, 5 days a week



ECENTRIC STRENGTHENING OF ANTAGONISTIC MUSCLES

For the muscle group under examination perform 3 sets of 10 repetitions per day, for 5 days a week

RESULTS

CLINICAL DATA

PATIENTS		15
DIAGNOSIS	SM-PP	5
	SM-SP	9
	SM-RR	1
AGE		48 (31-71)
EDSS		6.5 (4-8)
ORAL THERAPY	YES	14
	NO	1
DMT	YES	7
	NO	8
NAIVE		8

Goal Attainment Scale (GAS) DATA

GOAL	GAS -2	GAS -1	GAS 0	GAS +1	GAS +2
GAIT		1	6	1	2
POSTURAL CHANGES		1	3		
SPASM			1		

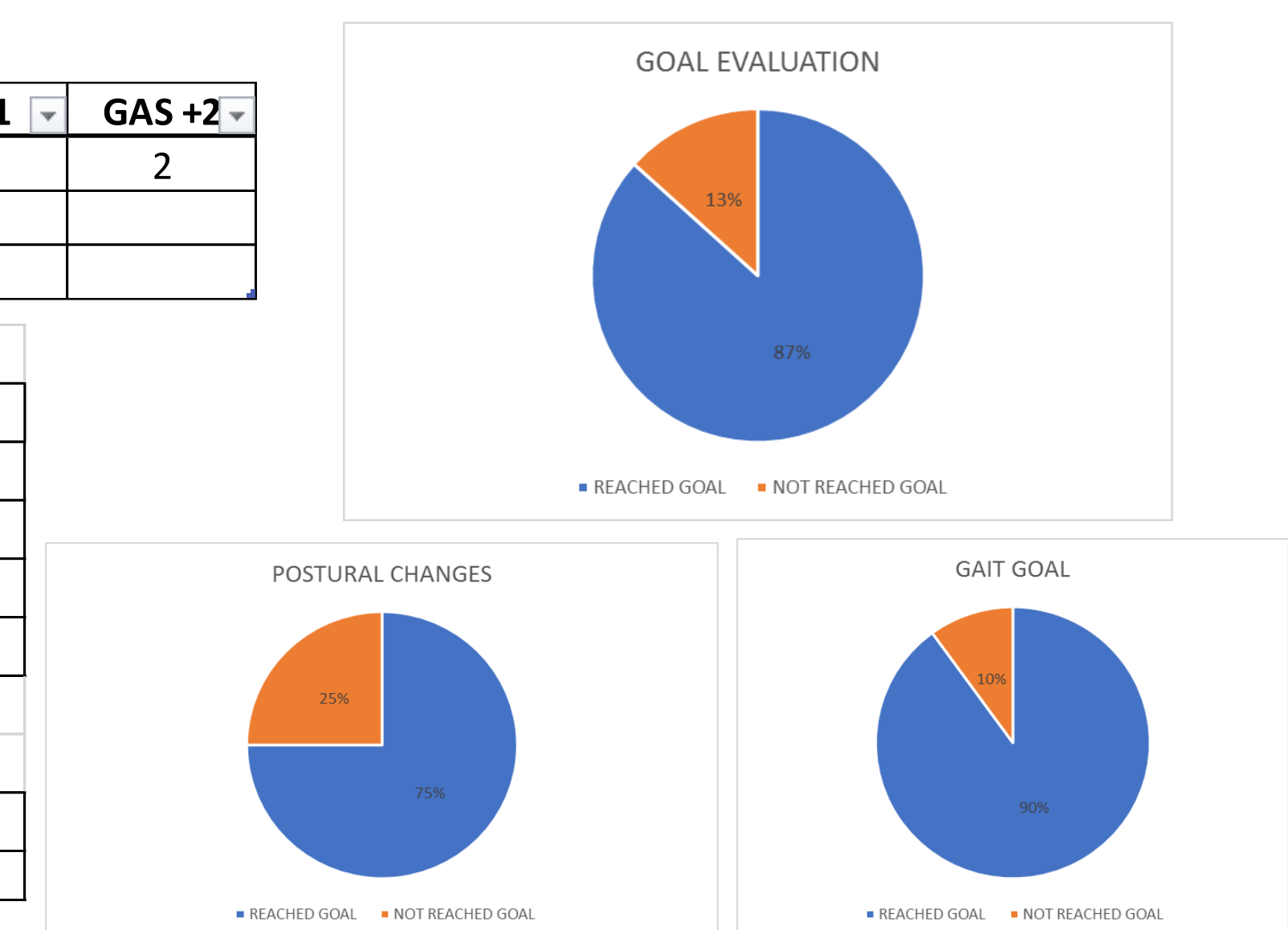
Postural changes

PTS	FIM I-J-K PRE	FIM I-J-K POST	DELTA	GAS
6	6	8	2	0
8	16	18	2	0
12	5	7	2	0
13	5	5	0	-1

Spasm

PTS	SFS (PRE)	SFS (POST)	DELTA	GAS
15	3	1	2	0

Percentage of patients who have achieved the goal



Gait

PTS	SPECIFIC GOAL	CLINICAL SCALES	TEST PRE	TEST POST	%	GAS
1	Improve home mobility	TUG	N.E	34	X	0
2	Increase gait resistance	6MWT	N.E	120	X	0
3	Improve home mobility	TUG	X	X	X	-1
4	Increase gait resistance	6MWT	330	378	15	0
5	Increase gait resistance	6MWT	121	178	47	1
7	Increase gait resistance	6MWT	180	231	27,80	0
9	Reduction of falls and increase gait resistance	6MWT, TUG	270	298	10,00	2
10	Improve home mobility	TUG	67	41	39	0
11	Increase gait resistance	6MWT	135	186	38	2
14	Increase upright and gait resistance	6MWT	126	162	29	0

PATIENT	GOAL	HIP ADDUCTOR	HIP FLEXORS	KNEE EXTENSOR	KNEE FLEXORS	FOOT FLEXORS
1	Gait	X				
2	Gait					X
3	Gait	X				
4	Gait	X				
5	Gait	X				
6	Postural Changes	X				
7	Gait			X		X
8	Postural Changes	X	X			
9	Gait	X		X		X
10	Gait				X	X
11	Gait	X			X	
12	Postural Changes	X	X	X		X
13	Postural Changes	X				X
14	Gait					X
15	Spasm		X		X	

GOAL	Pts Number	HIP ADDUCTOR	HIP FLEXOR	KNEE EXTENSOR	KNEE FLEXOR	FOOT FLEXOR
Gait	10	6		2	1	12
Postural Changes	4	4	2	1		2
Spasm	1		1		1	

CONCLUSION

These preliminary data suggest that the achievement of the individualized objective, targeted on actual and specific needs of the patient, is possible through an integrated and multidisciplinary approach; so the association of an adequate physiotherapy program after BT-A injection in treating focal spasticity in MS patients is not only an instrument for reducing muscle tone, when inserted in more complex rehabilitative program.