



**RESPONSE TO PAIN BY MODIFYING SPATICITY WITH DRY NEEDLE IN MULTIPLE SCLEROSIS PATIENTS
RESPUESTA AL DOLOR MODIFICANDO LA ESPASTICIDAD CON PUNCIÓN SECA EN PACIENTES CON EM**

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Palabras clave: Dry needling, spasticity, Functional Connectivity, pain, Multiple Sclerosis/ **Punción Seca, Espasticidad, Conectividad funcional, dolor, sclerosis multiple**

Introducción:

Patients with multiple sclerosis (MS) present **pain** in approximately **86%** of cases, and although its intensity varies, it is a serious problem in their daily lives. **Neuropathic pain** can occur in **myelitis** and **neuralgia** or in other situations such as pain associated with **spasticity**.

One of the most common symptoms is **spasticity**, which occurs in **40-60%** of patients with MS. It involves resistance to movement, motor and sphincter dysfunction, **pain**, spasms and impairs gait. Spasticity can be treated with medications, surgery, stretching and infiltrating the muscles with botulinum toxin, using one form or combining several, with little Effectiveness and high cost..

Dry needling is a semi-invasive technical physiotherapy that consists of identifying **trigger points with spasticity** and performing a puncture at that point, with which **muscle relaxation is produced**, which allows a reduction in pain to the contracted and spastic muscle, as well as **better mobility without loss of strength**



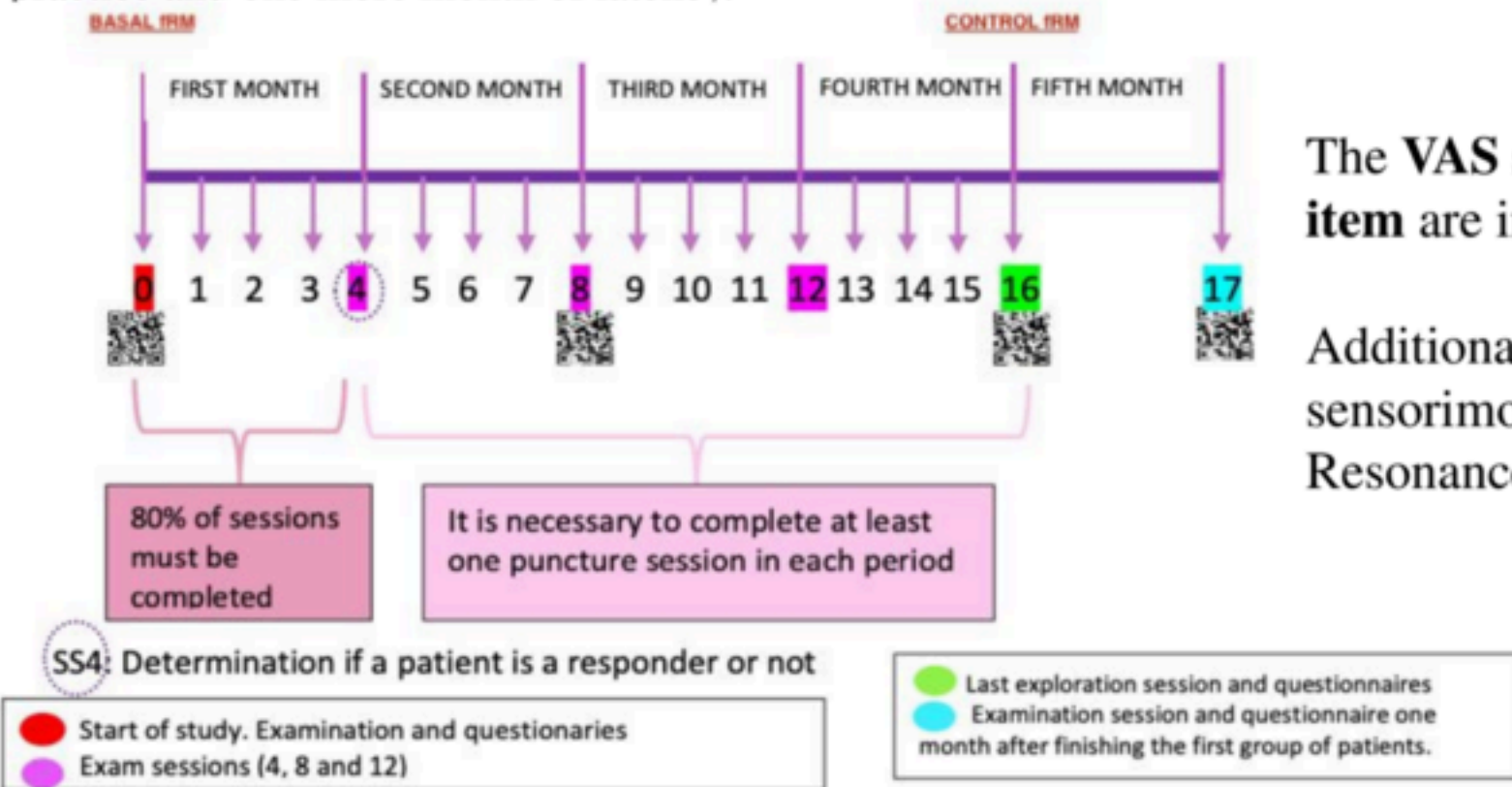
Objetivo:

Improving pain in patients with multiple sclerosis (MS) through treatment of **spasticity with dry needling**.

Material y Método

20 patients with MS who present **pain caused by spasticity** and with an **EDSS > 2.5** are included.

A **dry needling** session is performed weekly for 4 months. For a subgroup of 12 patients, the study is extended to 5 months of practice and one more month of latency.



The **VAS scale, PENN, MSQol 54, EDSS and pyramid item** are included in the study.

Additionally, **changes in Functional Connectivity (FC)** of sensorimotor cortex, measured by functional Magnetic Resonance Imaging (fMRI), were also analyzed.

All data are analyzed using the SPSS statistical package.

Resultados

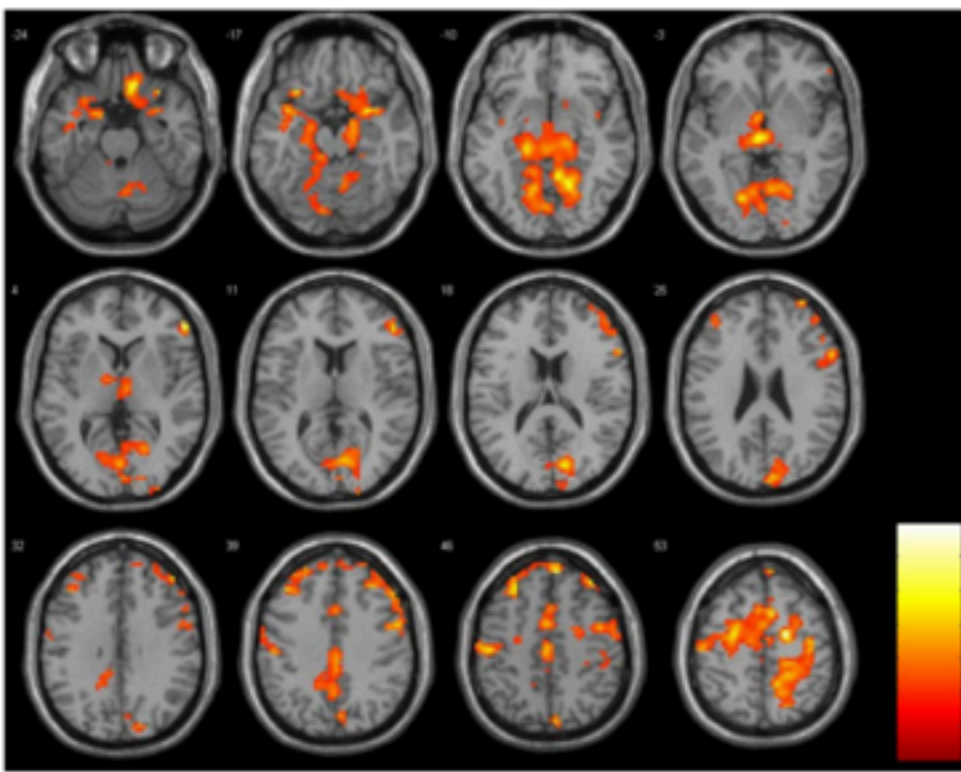
N=20	PRE-TREATMENT RESULTS	POST-TREATMENT RESULTS	t-Student	P valor
VAS	4,42 ± 2,61	3,26 ± 2,75	2,67	0.016*
EDSS	4,5 ± 1,7	4,29 ± 1,47	2,036	0.057
Piramidal item	3,26 ± 0,73	3,16 ± 0,83	1	0.331
QOL54 PHYSICAL	54,83 ± 13,34	62,35 ± 14,56	-3,47	0.003*
QOL54 MENTAL	62,79 ± 15,95	70,79 ± 19,19	-2,72	0.014*

Data are mean ±SD. *p<0.05
VAS: Visual Analogical Scale, EDSS: Expanded Disability Status Scale
QOL54: Quality of Life 54

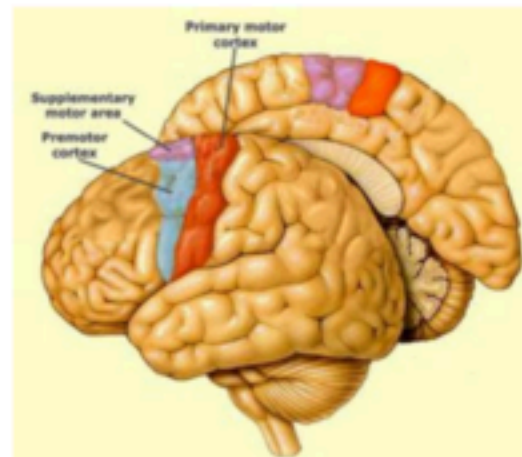
Statistically significant results are shown for the **reduction of pain on the VAS and PENN scales** and a significant **improvement on the MSQol54**.

N=12	PRE-TREATMENT RESULTS	POST-TREATMENT RESULTS	t-Student	P valor	FOLLOW UP VISIT RESULTS	t-Student	P valor
VAS	4 ± 2,72	0,91 ± 1,04	3,79	0.004*	1,64 ± 1,80	3,42	0.007*
EDSS	4,45 ± 1,33	3,68 ± 1,34	2,54	0.029*	3,95 ± 1,47	2,34	0.041*
Piramidal item	3,18 ± 0,60	2,91 ± 0,94	1,39	0.192	3,18 ± 0,87	0	1
QOL54 PHYSICAL	57,19 ± 8,60	69,70 ± 8,88	-4,09	0.02*	64,81 ± 7,71	-2,63	0.025*
QOL54 MENTAL	64,97 ± 17,94	83,30 ± 7,01	-3,45	0.006*	79,89 ± 11,48	-2,31	0.044*
PSFS	25,7 ± 22,05	13 ± 15,71	3,07	0.013*	13,40 ± 18,59	3,53	0.006*

Data are mean ±SD. *p<0.05
VAS: Visual Analogical Scale, EDSS: Expanded Disability Status Scale
QOL54: Quality of Life 54



Análisis comparativo de los mapas de conectividad funcional del **área motora primaria** post-intervención vs. pre-intervención. p-valor corregido a nivel de clúster=0.05. La barra muestra el valor del estadístico T.



Changes in the FC (Funtional connectivity) of the sensorimotor cortex were identified after the period of treatment. Increases in connectivity of the **motor, premotor, occipital and tempromedial áreas**.

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Conclusiones

- Dry needling** is a useful tool to modulate **spasticity pain** in patients with MS, improving their **quality of life**.
- This technique produces **increases in connectivity of the motor areas**

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