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Background: The pathophysiology of fibromyalgia syndrome (FM) still needs to be fully clarified. In addition to the central sensitization mechanisms, some evidence suggests an involvement of the peripheral nervous system, mainly intended as small fibers neuropathy. The sural nerve showed some alterations, in terms of increased cross-sectional area (CSA), in the course of small fibers neuropathy.

Objectives: To evaluate sural nerve CSA and factors associated with increased CSA in FM patients.

Methods: A cross sectional evaluation was conducted in consecutive FM patients according to the 2016 American College of Rheumatology criteria. Demographic, clinimetric parameters (in particular the revised Fibromyalgia Impact Questionnaire [FIQR] to assess the severity of the disease and the Pain-Detect Questionnaire [PDQ] to evaluate neuropathic pain features) and the sural nerve dimensions measured by ultrasound were recorded for each patient. The size of the sural nerve was described in terms of the mean cross-sectional area (CSA) measured bilaterally. CSA was measured at the leg level, 14 cm from the apex of the lateral malleolus, where the sural nerve is detectable as a structure adjacent to the small saphenous vein in the distal portion of the leg. The ultrasound examination was performed with a MyLab Class C (Esaote S.p.A., Genoa, Italy) equipped with a 6-18 MHz multifrequency broad band probe. CSA was compared with demographic and clinimetric parameters through one-way analysis of variance (ANOVA). A multiple regression was also conducted using CSA as dependent variable, with age, body mass index (BMI), disease duration, FIQR and PDQ as independent variables.

Results: The study involved 110 FM patients (105 women and five men), with a mean age of 50.7 (± 11.1) years and a mean disease duration of 5.8 (± 5.2) years. Sural nerve CSA showed a statistically significant increase in patients with higher PDQ scores ($p=0.0096$) and, even more significantly, in overweight or obese subjects ($p<0.001$). The multiple regression analysis, using CSA as dependent variable, confirmed that the PDQ score ($p=0.0049$) and the body mass index ($p<0.0001$) are the only two independent variables associated with CSA size (Table 1).

Table 1. Multiple regression analysis of the independent variables related to the mean cross-sectional area (dependent variable) of sural nerve.

Independent variables	Coefficient	Standard error	t	p	r _{partial}	r _{sempartial}
Constant	-0.2551					
BMI	0.07592	0.01847	4.111	0.0001	0.3739	0.3462
Disease duration	-0.02492	0.02092	-1.191	0.2364	-0.1160	0.1003
Age	0.002455	0.009833	0.250	0.8033	0.02448	0.02103
FIQR	0.0001376	0.006862	0.0201	0.9840	0.001966	0.001689
PDQ	0.05272	0.01997	2.639	0.0096	0.2506	0.2223

Abbreviations: BMI=Body Mass Index; FIQR=revised Fibromyalgia Impact Questionnaire; PDQ=PainDetect Questionnaire

Conclusion: Increased sural nerve CSA is associated with neuropathic like pain features and BMI. Overweight and obesity appear to be associated with an FM phenotype with greater peripheral involvement than normal-weight subjects. Sural nerve ultrasound, an easy to perform examination, could be a useful tool to identify this kind of patients.

References:

- [1] Ebadi H, Siddiqui H, Ebadi S, Ngo M, Breiner A, Bril V. Peripheral Nerve Ultrasound in Small Fiber Polyneuropathy. *Ultrasound Med Biol*. 2015;41(11):2820-6. doi: 10.1016/j.ultrasmedbio.2015.06.011
- [2] Giannoccaro MP, Donadio V, Incensi A, Avoni P, Liguori R. Small nerve fiber involvement in patients referred for fibromyalgia. *Muscle Nerve*. 2014;49(5):757-9. doi: 10.1002/mus.24156

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IS NEUROPATHIC PAIN IN INFLAMMATORY RHEUMATIC DISORDERS AN UNDERESTIMATED PROBLEM? RESULTS FROM THE GERMAN PAINDETECT DATABASE

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Background: The aim of the study was to investigate the impact and relevance of neuropathic pain in inflammatory rheumatic disorders (IRD) and osteoarthritis (OA).

Objectives: Pain is one of the main symptoms in patients with IRD and OA. To enhance a mechanistic based treatment of pain the differentiation between nociceptive and neuropathic pain via screening tools (e.g. painDETECT questionnaire) might possibly be helpful. The goal of the study was to investigate (1) if neuropathic pain is a significant burden for patients with IRD and (2) if pain patterns differs from degenerative joint diseases such as OA in over 9.000 patients in each group.

Methods: painDETECT is a questionnaire that has been evaluated and used in numerous clinical trials to detect neuropathic pain in various diseases. The collected data is centrally managed and evaluated. In total (end of 2019) 395.984 patients have been documented. Out of the painDETECT database 9256 patients with IRD and 9436 patients with OA were extracted, analyzed and compared on their neuropathic pain pattern (screening was performed using the painDETECT-questionnaire, PDQ). Secondary parameters were: intensity of pain, functional status, depression, chronicity and sleep disorder. Patients had been recruited from general practitioners (GPs), Rheumatologists, Orthopedics and Neurologists from 862 office-based physicians into the painDETECT-database. This project is an open label registry study in Germany.

Results: The median PDQ-score of patients with inflammatory rheumatic disorders adds up to 14,2 (1-38) and of OA patients to 13,8. 28.7% of inflammatory rheumatic disorders and 27.2% of OA-patients showed signs for neuropathic pain by positive PDQ. The difference was according to this high patient numbers statistically significant ($P=0.0015$). VAS-Score, Depressions-Score, Chronicity -Score and Functional -Score showed no clinically relevant differences between these two groups.

Conclusion: Nearly one third of patients with IRD as well as patients with OA showed neuropathic pain components by using PDQ. Despite increasingly better disease control through more effective therapies, pain still remains a major burden for many patients and has a profound impact on their quality of life. The present data indicate a surprisingly high symptoms of neuropathic pain even in IRD patients and should be considered in the management of our patients. A new documentation system for Rheumatologists (RheumaAssist) could help to address these questions.

Percentage of PDQ-categories (negative/unclear/positive) for patients with inflammatory rheumatic disorders (IRD) or Arthrosis (OA)

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