Abstract

Introduction: Rare rheumatic diseases, such as systemic sclerosis (SSc) and idiopathic inflammatory myopathies (IIM), are severe autoimmune diseases characterized by multiorgan involvement and often significant functional impairment that are chronic and progressive in nature. Severe clinical manifestations of SSc and IIM are often associated with significant deterioration of all aspects of quality of life, including sexual function. Only a low number of studies have addressed sexual health in patients with SSc and IIM, which are limited by small sample size, the use of non-standardized scales, or poor methodological quality. In addition, none of the studies evaluated pelvic floor function and its relationship to sexual function in patients with these diseases.

Objectives: The aim of this work was a cross-sectional evaluation of the prevalence and severity of sexual dysfunction and pelvic floor dysfunction in women and men with SSc and IIM compared to sex-/age-matched healthy controls (HC). Furthermore, we aimed to evaluate the association between sexual dysfunction/pelvic floor dysfunction and disease-related features. Finally, our goal within the pilot project was to evaluate the effect of an 8-week physiotherapy program on sexual function in women with SSc and IIM.

Methods: This work consists of two projects; the first one represents a monocentric cross-sectional controlled study and the second one is a pilot intervention, non-randomized controlled study. In total, 90 women with SSc, 61 women with IIM, 20 men with SSc, 11 men with IIM, and the same number of sex/age-matched HC participated in the cross-sectional study. All patients met the classification criteria for the particular disease, and, together with HC, completed seven gender-specific well-established, and validated questionnaires assessing sexual health and two questionnaires assessing pelvic floor function. The results were compared between patients and HC and correlated with relevant disease-related features. In the intervention project, we involved 12 women with SSc and 4 women with IIM. Based on their willingness and capability to attend regular physiotherapy at the Institute of Rheumatology, they were divided into an intervention group (IG) and a control group (CG). The IG underwent an eight-week tailored physiotherapy program focused individually on musculoskeletal problems subjectively limiting the patient's sexual functions including pelvic floor exercise, whereas the CG received no physiotherapy during this period of time. At weeks 0 and 8, all patients filled in questionnaires assessing sexual function, functional ability, physical fitness, overall quality of life, fatigue, and depression. Statistical analysis included data normality tests; differences between two groups were determined by the independent-sample t-test or the Mann-

Whitney U test (for continuous variables) and by the Chi-squared test (for categorical variables); the bivariate relationships were assessed by Pearson's or Spearman's correlation coefficient; multiple linear regression analysis was used to evaluate multivariate relationships, and inter-group analysis was performed with 2-way ANOVA and intra-group analysis by Friedmann's test to evaluate the efficacy of physiotherapy program.

Results: Herein, we demonstrated significantly worse sexual function compared to sex-/age-matched healthy controls in both men and women with SSc and IIM. We also observed significantly worse pelvic floor function in women and men with IIM and women with SSc. The prevalence of sexual dysfunctions was 73% (vs. 31% in HC) in women with SSc, 70% (vs. 15% in HC) in men with SSc, 59% (vs. 40% in HC) in women with IIM and 64% (vs. 9% in HC) in men with IIM. Worse scores in parameters of sexual function and pelvic floor function were significantly associated with higher disease activity, increased systemic inflammation, more pronounced fatigue, reduced physical fitness, more severe depression, and impaired overall quality of life in patients with SSc. In addition, the presence of dyspnea, interstitial lung disease, and greater functional impairment correlated with worse sexual function in women with SSc. In patients with IIM, worse sexual performance was significantly associated with more pronounced fatigue, reduced physical fitness, more severe depression, and worse overall quality of life. In addition, in women with IIM, worse sexual function and pelvic floor function correlated with greater muscle weakness and greater functional impairment. An eight-week physiotherapy intervention led to a significant improvement in questionnaires assessing sexual function, functional abilities, and the physical component of quality of life in the IG compared to a significant deterioration in the CG. We demonstrated that the prevalence of sexual dysfunction in patients with SSc and IIM is significantly higher compared to HC, which can be associated with pelvic floor dysfunction and some disease-specific characteristics, and that physiotherapy could improve not only the functional abilities and quality of life but also the sexual health of women with SSc and IIM.

Keywords: systemic sclerosis, idiopathic inflammatory myopathies, sexual health, pelvic floor, physiotherapy