Complex regional pain syndrome type I: impact on work activities of working age individuals. Case reports

Síndrome complexa de dor regional de tipo I: impacto na atividade laboral de sujeitos em idade produtiva. Relato de casos

Aline Sarturi Ponte[1], Mithielle de Araujo Machado[2], Miriam Cabrera Corvelo Delboni[3], Thais Rosa Costa[4], Bárbara Santos Luccas Duarte[5]

DOI 10.5935/1806-0013.20170116

ABSTRACT

BACKGROUND AND OBJECTIVES: Complex regional pain syndrome type I causes personal and social losses to the affected subject. The objective of this study was to analyze life, health and working condition of subjects with this syndrome, of working age, in a city in the countryside of Rio Grande do Sul, RS.
CASE REPORTS: Study of seven cases, with the diagnosis of complex regional pain syndrome type I, with a predominance of female, married, relatively low educational level. In assessing physical health condition, the majority of participants considered their physical health moderate, and bad mental/emotional health. Most participants used assistive technology resources.
CONCLUSION: It was observed that the syndrome interfered in the participants' work activities. The data of the International Classification of Functioning, Disability, and Health showed that these subjects face several limitations in their daily activities. Therefore, this disease has negative impacts on life/health condition of these workers, who are temporarily or permanently forced to leave their work activities.
Keywords: Daily activities, International classification of functioning disability and health, Motor skills disorders, Work.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A síndrome complexa de dor regional de tipo I causa prejuízos pessoais e sociais ao sujeito acometido. Este estudo teve como objetivo analisar as condições de vida/saúde e laborais de sujeitos com essa síndrome, em idade produtiva, no município do interior do Rio Grande do Sul, RS.
RELATO DOS CASOS: Estudo de sete casos, diagnóstico de síndrome complexa de dor regional de tipo I, com o predomínio do sexo feminino, casado, com nível escolar relativamente baixo. Na avaliação da condição de saúde física, a maioria dos participantes considerou sua saúde física moderada, e a saúde mental/emocional ruim. A maioria dos participantes utilizavam recursos de tecnologias assistivas.
CONCLUSÃO: Observou-se que a síndrome interferiu nas atividades de trabalho dos participantes. Já os dados da Classificação Internacional de Funcionalidade e Incapacidade e Saúde demonstraram que esses sujeitos enfrentam diversas limitações em suas atividades cotidianas. Portanto esta doença causa impactos negativos na condição de vida/saúde desses trabalhadores, que precisam, na maioria das vezes, serem afastados de suas atividades laborais, temporariamente ou em definitivo.
Descritores: Atividades cotidianas, Classificação internacional de funcionalidade e incapacidade e saúde, Trabalho, Transtornos das habilidades motoras.

INTRODUCTION

In 1994, *The International Association for the Study of Pain* (IASP) created the term complex regional pain (CRPS), subdivided into two categories, according to the CRPS triggering mechanism, types I and II, classifying them as neuropathic pain (NP). This classification prevailed for 17 years, but due to some criticism to this definition, in 2011, IASP gathered the *Neuropathic Special Interest Group* (NEUPSIG), with the objective to redefine the NP concept, creating criteria for the diagnosis and treatment both for the practical clinic and research[1].

From this moment on, NP came to be defined as "that pain resulting from an injury or disease that directly affects the somatosensory system[2]. This new definition excluded CRPS from the NP concept, as well as the essential trigeminal neuralgia and fibromyalgia, among others[1]. From this new context, they were named "dysfunctional pain"[2,3].

The CRPS I pathophysiology is considered inconclusive[3], with characteristics such as local vascular perfusion increase but with

1. Universidade Federal de Santa Maria, Terapeuta Ocupacional, Programa de Pós-Graduação em Distúrbios da Comunicação Humana, Santa Maria, RS, Brasil.
2. Universidade Federal de Santa Maria, Fisioterapeuta, Programa de Pós-Graduação em Distúrbios da Comunicação Humana, Santa Maria, RS, Brasil.
3. Universidade Federal de Santa Maria, Departamento de Terapia Ocupacional, Santa Maria, RS, Brasil.
4. Universidade Federal de Santa Maria, Terapeuta Ocupacional, Santa Maria, RS, Brasil.
5. Universidade Federal de Santa Maria, Terapeuta Ocupacional, Programa de Pós-Graduação em Reabilitação Funcional, Santa Maria, RS, Brasil.

Submitted in March 29, 2017.
Accepted for publication in August 15, 2017.
Conflict of interests: none – Sponsoring sources: none.

Correspondence to:
Av. Roraima nº 1000 – Cidade Universitária, Bairro Camobi
97105-900 Santa Maria, RS, Brasil.
E-mail: alinesarturi@hotmail.com

poor tissue nutrition, accumulation of macromolecules, exacerbated inflammatory process[4], causing intense pain that persists after the injury[5,6].

CRPS is a rare disease, only 1% of the people develop this syndrome as a result of a nerve injury or tissue trauma, being the second most common cause (60%), and the upper limbs are the most frequently affected. But there is no accurate data on the prevalence of CRPS[7]. There are few Brazilian studies on this theme and the ones we have cover specific situations (workers, the elderly, body regions) or outpatient environment[8].

CRPS I can be subdivided into three stages, being the first also known as acute phase, that occurs soon after the injury until the third month, presenting as signals and symptoms a shining skin, hyperemic, cyanotic, cold, dry or with hyperhidrosis (excess sweating). The second stage, also known as dystrophic phase, starts from the third month and extends up to the sixth month of the injury, where the symptoms and signs of the first stage get worse, with other changes such as, for example, nails with brittle aspect, reduction in polymotor activities, digital pulp atrophy and periarticular space of the affected joints. The third stage or atrophic phase begins after the sixth month and may last for a lifetime. Here, the intensity of the pain decreases, the edema evolves to fibrosis and periarticular thickening, the skin may appear dark or pale, and the affected extremities rigid[9,10].

It is known that CRPS I is difficult to treat since besides being different due to the central and peripheral pathophysiology, it also has a prevalence of motor alterations[11] that lead the subject to develop functional limitations that end up compromising daily activities (DA), instrumental activities of daily living (IADLs), disability for leisure and work activities, being early retirement one of the main consequences of this disease[6].

The conditions imposed by the disease compromise the autonomy, causing limitations in the social role that reverberate in the quality of life (QoL) of the subjects[6], not to mention the psychological manifestations of anxiety and depression[12]. It also gives rise to frustration related to therapeutic treatments without great results with regard to pain, a high demand for tests and unsatisfactory information from the health team[13].

It can be observed that CRPS I compromise the health condition, the functionality and the participation of the patient in activities considered significant. Thus, to understand the health condition of the population, the World Health Organization (WHO) currently adopts two classification systems. They are The International Classification of Diseases (ICD) "an abnormal health condition and its causes, without stating the impact of these conditions on the person's life"[14]. This classification presents an etiological model, an anatomo-functional, an anatomo-pathological, clinical and epidemiological. And the International Classification of Functioning, Disability and Health (ICF) that is based on a biopsychosocial model, which encompasses the physical and social environment, the different cultural perceptions and attitudes towards disability, the availability of services and the legislation[15]. This classification is based on two concepts: functionality -" a term that covers all the body functions, activity and participation, and disability is a term that covers deficiencies, limitations of activities or restriction in participation"[16]. ICD and ICF are considered complementary classifications, the information obtained provides a wider picture of the patient's life and health conditions[14].

It can be observed that this disease causes limitations and restrictions in the life/health of people. Thus, the model proposed by the ICF will provide a broader view of the functionality and disability, not based only on body structure and function, but considering all health dimensions, including activities and participation.

Given the complexity of this disease, the objective of this study was to analyze the life/health and work conditions of subjects with CRPS I in working age.

CASE REPORTS

This is a descriptive, exploratory study with a cross section approach of a series of cases, with the participation of seven people of both genders, aged 18 years or above. They are workers in leave of absence due to the diagnosis of CRPS I, who were starting the therapeutic follow-up (medical, psychological, physical therapy and occupational therapy) in the Pain Group of the Santa Maria University Hospital (HUSM).

Data collection occurred from February of 2013 to June of 2014, using the ICF summarized Check List [17]. The collection was in the HUSM facilities, in a single and individual session, for approximately 1 hour. At this meeting, we collected data on demographic information, body functions and structures, activity and participation, environmental and personal factors and health information summary.

The ICF is organized in two parts: i) functionality and disability (Part 1); and (ii) contextual factors (Part 2). Part 1 is divided into two components: i) body functions (represented by the letter b: *body* and body structures (represented by the letter s: structure; and ii) activity and participation (represented by the letter d: domain). The contextual factors are divided into two components: i) environmental factors (represented by the letter e: environment); and personal factors include characteristics of a subject (gender, age, other health and physical conditions, education, among others), life history and style. These are not classified in the ICF, however, they make up its structure because they can have an impact on the health condition of the subject[16].

In ICF, the letters ***b***, ***s, d,*** and ***e*** are followed by a numerical code and the description of functionality and disability, restriction of the activity and participation, and environmental factors, thus creating an alphanumeric code. Also, a qualifier is assigned by a general numeric scale, that will present the extension of disability or restriction. The component of the body functions has a qualifier related to the extension of the disability: zero - indicates no disability, 1 - mild disability, 2 - moderate disability, 3 - severe disability, 4 - total disability, 8 - not applicable, 9 - not applicable[16].

The component related to body structures account has three qualifiers, two of them are required by the Check List, and the third is optional. The first qualifier refers to the extent of the

disability of this component, following the same scale of body functions (located right after the alphanumeric code, separated by a dot). The second qualifier refers to the nature of the disability (it occupies the second position after the alphanumeric code): zero - no change in structure, 1 - total absence, 2 - partial absence, 3 - additional part, 4 - abnormal/aberrant dimensions, 5 - discontinuity, 6 - position deviation, 7 - qualitative changes in the structure, including accumulation of liquids, 8 - not applicable, 9 - not applicable. The third qualifier indicates the location of the disability (it occupies the third position after the alphanumeric code): zero-more than one region, 1 - right, 2 - left, 3 - both sides, 4 - anterior part, 5 - posterior part, 6 - proximal, 7 - distal, 8 - not specified, 9 not applicable[16].

The component referring to activities and participation is organized with two qualifiers. The first qualifier indicates the performance (occupies the position after the alphanumeric code, separated by a dot). This qualifier describes what the subject does in his usual environment. The second qualifier refers to the ability (occupies the second position after the alphanumeric code), this indicates the ability of the subject to perform a task or action (unassisted). The scale used to qualify these components is the same used for body functions. Environmental factors are indicated as barriers and facilitators: zero-no facilitator/barrier; 1 - light barrier, 2 - moderate barrier, 3 - considerable barrier and 4 - complete barrier; +1 - light facilitator, +2 - moderate facilitator, +3 - considerable facilitator and +4 - complete facilitator[16] .

The data of this study was descriptively analyzed. Participants were clarified about the objectives of the study and signed the Free Informed Consent Term (FICT). It should be noted that participants' names will be kept in secrecy, to preserve their identity. Therefore they will be identified as P1, P2, P3, P4, etc.

The participants in this study were of both genders, being two men and five women. The minimum age was 28 years and the maximum 59 years. As for the marital status, five were married. The level of education can be considered relatively low because four had concluded elementary school, two had incomplete elementary school, and one had concluded high school. Concerning the labor activity, three participants were housemaids, two were tobacco growers, one was loading and unloading helper, and one was a nanny, all of them on leave of absence at the time of the evaluation.

Of the seven participants, two had the involvement of the right upper limb (RUL), two of the left upper limb (LUL), one of the right lower limb (RLL) and two of the left lower limb. In the evaluation of current health conditions, four participants considered their health as moderate, two considered it bad, and one considered it very bad. As for the mental/emotional health, three participants considered bad, two considered moderate, one considered very good and one bad.

As for the use of assistive technological resources, four used some device, such as glasses and/or crutches. All participants were using painkillers and antidepressants. It was observed that the CRPS I interfered in the work activities of the participants because six were on leave of absence and one was retired.

As for body functions, the participants with CRPS I presented some impairment of mental functions (b1), and the components reported by the participants were sleep (b134), orientation (b114), attention (b140), memory (b144) and emotional functions (b152). In sensory functions and pain (b2), vision (B21 0), hearing (b230), buccal (b235) and pain (b280), were the most important components. On the functions of the cardiovascular, hematological and respiratory systems (b4), the components of heart function (b410), blood pressure (b420) and respiratory system (b440) were commented. On the functions of the digestive, metabolic and endocrine system (b5), the component related to digestive functions (b515) was mentioned. With regard to genitourinary and reproductive functions (b6), the components of urinary functions (b620) and sexual (b640), were reported. In the functions related to neuro musculoskeletal movement (b7), joint mobility (b710), muscle strength (b730), muscle tone (b735) and involuntary movement (b765) were mentioned (Table 1).

In body structures - the structures of the nervous system (s1), brain (s110), spinal and peripheral nerves (s120). Structures related to movement (s7) – region of the shoulder (s720), upper extremity (arm, hand) (s730) and lower extremity (leg, foot) (s750) (Table 1).

With regard to the activity and participation functions, participants had restrictions in the learning and application of the knowledge domains (d1) in the hearing component (d115). In the domain of tasks and general demands (d2), participants had difficulty in performing a single task (d210) and multiple tasks (d220). In communication (d3), we observed restrictions on the speech (d330). In the domain related to mobility (d4), in the components of lifting and carrying objects (d430), in-hand manipulation – grab, hold (d440), walking (d450), use of transportation - cars, bus, train, plane, etc. (d470) and drive - bike, bike, car, etc. (d475). Personal care (d5), wash-bathe, dry, wash hands, etc. (d510), take care of body parts-brushing teeth, etc. (d520), get dressed (d540), eating (d550), drinking (d560) and take care of their own health (d570). With respect to household life (d6), the components are the purchase of goods and services – shopping, etc. (d620), preparation of meals – cooking, etc. (d630), housekeeping - cleaning the house, washing dishes, clothes, etc. (d640). In interpersonal relations and interactions (d7), basic interpersonal interactions (d710) and complex (d720), formal relations (e740), informal social (750) and family (d760) were the components reported by the participants. The main areas of life (d8), paid work (d850) and basic economic transactions (d860) were reported. In community life, social and civic (d9), community life (d910), recreation and leisure (d920) and religion and spirituality (d930), were mentioned by the participants (Table 2).

Regarding products and technology (e1), the products and substances for personal consumption - food, medicine (e110), products and technologies for the personal use in daily life (e115) and products and technology for mobility and personal transportation (e120) were mentioned by the participants. In the domain of natural environment (e2), climate (225) was the only component cited by participants. In support and relationships (e3), the immediate family (e310), friends (e320) and health professionals

Table 1. Function impairment (Part 1a) and body structures (Part 2a)

Parts	Domains	Components	P1	P2	P3	P4	P5	P6	P7
Body functions (Part 1a)	Mental functions (b1)	Sleep (b134)	0	4	0	0	0	0	2
		Orientation - time, place, person (b114)	0	2	0	0	0	0	0
		Attention (b140)	0	3	0	0	1	2	2
		Memory (b144)	0	4	0	0	2	1	2
		Emotional functions (b152)	1	1	0	0	1	0	3
	Sensory functions and pain (b2)	Vision (B21 0)	0	3	0	1	2	2	2
		Hearing (b230)	0	3	0	0	0	0	0
		Buccal (b235)	0	4	0	0	0	0	0
		Pain (b280)	2	4	3	3	4	4	4
	Functions of the cardiovascular, hematological, immune and respiratory systems (b4)	Heart functions (b410)	0	3	0	0	0	0	0
		Blood pressure (b420)	0	0	0	0	0	2	0
		Functions of the respiratory system (b440)	0	3	0	0	0	0	0
	Functions of the digestive, metabolic and endocrine systems (b5)	Digestive functions (b515)	0	0	0	1	0	2	0
	Genitourinary and reproductive functions (b6)	Urinary functions (b620)	0	2	0	0	0	0	0
		Sexual functions (b640)	0	0	0	0	4	0	2
	Neuro musculoskeletal and movement related functions (b7)	Joint mobility (b710)	3	0	3	2	4	4	3
		Muscle strength (b730)	3	0	4	3	4	4	3
		Muscle tone (b735)	0	0	3	2	0	4	3
		Involuntary movements (b765)	0	3	0	0	0	0	0
Body structures (Part 2a)	Structures of the nervous system (s1)	Brain (s110)	000	300	000	000	000	000	000
		Spinal and peripheral nerves (s120)	458	000	388	000	388	388	188
	Structures related to movement (s7)	Shoulder area (s720)	382	481	381	481	000	000	000
		Upper extremity -arm, hand (s730)	382	481	381	481	000	000	000
		Lower extremity - leg, foot (s750)	000	000	000	000	482	382	282

P = participants; Qualifiers of Body Functions (Part 1a) = zero - indicates no impairment; 1 - mild impairment; 2 - moderate impairment; 3 - severe impairment; 4 - total impairment; 8 - not specified; 9 - not applicable. Qualifiers of body structures (Part 2a): Extension of the disability: 0 - indicates no impairment; 1 - mild impairment; 2 - moderate impairment; 3 - severe impairment; 4 - total impairment; 8 - not specified; 9 - not applicable. Nature of the impairment: zero-no change in structure, 1 - total absence, 2 - partial absence, 3 - additional part, 4 - abnormal/ aberrant dimensions, 5 - discontinuity, 6 - position deviation, 7 - qualitative changes in the structure, including accumulation of liquids, 8 - not applicable, 9 -not applicable. Location of the impairment: zero - more than one region; 1 - right; 2 - left; 3 - both sides; 4 - anterior part; 5 - posterior part; 6 - proximal; 7 - distal; 8 - unspecified; 9 - not applicable.

Table 2. Limitation of activity and restriction in participation (Part 2)

Domains	Components	P1	P2	P3	P4	P5	P6	P7
Learning and application of knowledge (d1)	Hearing (d115)	00	22	00	00	00	00	00
General tasks and demands (d2)	Perform a single task (d210)	00	00	00	00	22	00	00
	Perform multiple tasks (d220)	00	00	22	00	21	22	33
Communication (d3)	Speech (D330)	00	11	00	00	00	00	00
Mobility (d4)	Lift and carry objects (d430)	44	44	33	31	33	33	32
	Fine use of the hands - grab, hold (d440)	44	33	11	33	00	00	00
	Walk (d450)	00	00	11	00	33	00	33
	Use of transportation - car, bus, train, plane, etc. (d470)	00	00	22	44	33	33	44
	Drive - bike, motocycle, car, etc. (d475)	33	44	00	00	00	33	00
Personal care (d5)	Wash, bathe, dry, wash hands etc. (d510)	33	44	22	33	00	22	33
	Care of body parts - brushing teeth, etc. (d520)	32	21	21	33	00	00	33
	Dress up (d540)	22	44	33	33	00	22	33
	Eat (d550)	22	33	11	33	00	00	00
	Drink (d560)	00	11	00	11	00	00	00
	Take care of own health (d570)	00	21	00	00	00	21	00

Continue...

Table 2. Limitation of activity and restriction in participation (Part 2) – continuation

Domains	Components	P1	P2	P3	P4	P5	P6	P7
Domestic life (d6)	Purchase of goods and services – shopping, etc. (d620)	0 0	4 4	2 2	0 0	0 0	0 0	0 0
	Preparation of meals – cooking, etc (d630)	3 3	4 3	2 2	4 4	3 3	0 0	2 2
	Housekeeping – cleaning, washing dishes, clothes, etc. (d640)	3 3	0 0	4 4	3 3	2 2	2 2	3 3
Relationships and interpersonal interactions (d7)	Basic interpersonal interactions (d710)	0 0	0 0	0 0	0 0	0 0	0 0	3 3
	Complex interpersonal interactions (d720)	0 0	0 0	0 0	0 0	0 0	0 0	3 3
	Formal relations (e740)	0 0	0 0	0 0	0 0	0 0	0 0	4 4
	Informal social relations (750)	0 0	0 0	0 0	0 0	0 0	0 0	4 4
	Family relations (d760)	0 0	1 1	0 0	0 0	0 0	0 0	1 1
Main areas of life (d8)	Paid work	3 4	3 3	4 4	4 4	3 3	3 4	3 3
	Basic economic transactions (d860)	0 0	0 0	2 2	0 0	0 0	0 0	0 0
Community, social and civic life (d9)	Community life (d910)	0 0	0 0	0 0	0 0	2 2	3 3	2 2
	Recreation and Leisure	2 1	0 0	4 4	0 0	2 2	3 3	3 3
	Religion and spirituality (d930)	0 0	0 0	0 0	0 0	2 2	0 0	0 0

P = participants; Qualifiers related to the Activity and Participation components = zero - indicates no impairment; 1 - mild impairment; 2 - moderate impairment; 3 - severe impairment; 4 - total impairment; 8 - not specified; 9 - not applicable.

(e355) were reported. In the attitude domain (e4), the individual attitudes of members of the immediate family (e410), caregivers and personal assistants (e440) and health professionals (e450). And in the domain of services, systems and policies (e5), the components services, systems and transportation policies (e540), social security (e570), health (e580) and labor and employment (e590) were mentioned by participants (Table 3).

With regard to the data presented and analyzed by ICF, it was observed that the participants of this study had limitations in the functions and body structures and that these reflect directly on the activities and participation in their daily life. It is worth mentioning that they were still in a productive period of their lives and that after being affected by the syndrome they were on leave of absence or early retired.

DISCUSSION

In studies conducted by Raja and Grabow[18], discussing the mechanisms of the psychopathology of CRPS I, they found that this syndrome is more frequent in women, in a 3:1 ratio, and in another study carried in national level with 301 participants, 288 were female, accounting for 96% of the cases[19]. These results can be justified because women tend to have higher rates of musculoskeletal injury compared to men. Such injuries can result in a reduction of the labor capacity of the subject[20].

Regarding age, it is clear that participants were of working age, in line with other studies, which claim that people in working age are more affected by CRPS I[18,19]. The married status was prevalent in this study, but we did not find in the national and interna-

Table 3. Environmental factors

Domains	Components	P1	P2	P3	P4	P5	P6	P7
Products and technology (e1)	Products or substances for personal consumption - food, medicine (e110)	+3	0	+3	+1	+3	+2	0
	Products and technology for personal use in daily life (e115)	0	0	0	0	0	0	+2
	Products and technology for mobility and personal transportation (e120)	0	0	0	+2	0	+3	0
Natural environment (e2)	Climate (225)	0	0	1	1	2	4	0
Support and relationships (e3)	Immediate family (e310)	+2	+2	+3	+4	0	+4	+4
	Friends (e320)	+1	+1	+3	+2	0	0	+2
	Health professionals (e355)	+3	0	+3	0	+3	+3	+2
Attitudes (e4)	Individual attitudes of members of the immediate family (e410)	0	0	+3	0	0	0	+2
	Individual attitudes of caregivers and personal assistants (e440)	+1	0	0	0	0	0	0
	Individual attitudes of healthcare professionals (e450)	0	0	0	+4	0	0	0
Services, systems and policies (e5)	Services, systems and transportation policies (e540)	0	0	+3	0	0	0	0
	Services, systems and social security policies (e570)	3	3	3	3	3	3	2
	Services, systems and health policies (e540)	+3	0	+3	0	0	0	0
	Services, systems and labor and employment policies (e590)	3	3	2	0	3	0	3

P = participant; environmental factors are indicated as barriers and facilitators: 0 - no facilitator/barrier; 1 - light barrier, 2 - moderate barrier, 3 - considerable barrier and 4 - complete barrier; +1 - light facilitator +2 - moderate facilitator, +3 - considerable facilitator and +4 - complete facilitator.

tional literature studies relating the diagnosis of CRPS I with the marital status. But some studies that address the topic of chronic pain (not specifying the type) demonstrated in their results the prevalence of married people diagnosed with this disease[8,21-23]. The education of the participants can be considered relatively low, as well as in the study conducted by Azambuja, Tschiedel and Kolinger[24], in which participants with CRPS showed less than eight years of education.

The subjects affected by CRPS I have limitations on functions and body structures. When it reaches the upper limbs (UL), the syndrome compromises the movements of the shoulder and upper extremity. As for the lower limbs (LL), this syndrome limits the movements of the pelvis and lower extremity, restricting gait movement. It is known that the human body has a complex sensory network that depends on a dynamic integration of the lateral and medial systems and descendant pathways. In this study, five men had CPRS I in the UL, corroborating the data found by Rocha[25], which refers a greater impairment of the median nerve, followed by the ulnar, radial and brachial plexus.

Changes in anatomical structures of all participants were observed. They showed joint stiffness, decreased strength and involvement of muscle tone. Due to the constant pain, the subjects who suffer from this syndrome are afraid to perform movements (kinesophobia). Therefore, these subjects tend to reduce and/or avoid involving the affected limb in everyday activities, thus restricting their functionality, causing loss of muscle strength as well as muscle tone[23]. "The functional limitation is considered as one of the most striking consequences" [26] faced by sick workers and it interferes directly in labor activities[26].

In both groups, climate factors interfere directly in the functionality of the affected limb, and it is considered a barrier by four participants of this study. It was not found in the national and international literature, studies relating the diagnosis of CRPS with climate factors. But we did find studies on NP (not specifying the type), and according to these studies, climate change (heat or intense cold) are associated with an increase in pain intensity. These researchers point out that this relationship is not yet well-established[27,28].

Of the data collected in this study, it was evident that the subjects affected by CRPS I experience impairment in their daily activities and social participation. These subjects choose not to perform their community, leisure, work and economic, and religious and spiritual activities, which interferes with the basic and complex interpersonal interactions, family, formal and informal social relationships. This situation affects the QoL of these patients considerably.

The effects of CRPS I are not limited to physical health. This syndrome also affects the emotional health of the subject. Since pain is a multidimensional experience and an unpleasant feeling to the subject, it can cause emotional sequela[29] with a direct impact on the daily activities, mainly working activities in the case of subjects in working age[6]. Studies that address this theme consider pain "an unpleasant subjective sensory and emotional experience, difficult to quantify and qualify"[25].

As for the use of assistive technology (AT) resources, four used some device, such as glasses and/or crutches. Subjects with the involvement of LL refer to assistive technology for their mobility and personal use in daily life as facilitators in their everyday activities. AT devices (crutches, orthosis, among others) can be used for the treatment of chronic pain[30]. These resources act as facilitators of the occupational performance of subjects in their daily activities[30].

It was observed that CRPS I interfered in the work activities of the participants in the study, corroborating the study by Azambuja, Tchiedel e Kollinger[31] with formal employees, where 87% of participants were unable to work and/or on leave of absence as a result of this syndrome. Occupational absenteeism due to CRPS I can be characterized as a public health problem, due to the huge burden caused to government budget by subjects away from their work activities or early retired. Subjects with chronic pain who perform strictly manual work are limited in their activities inhibiting their productive capacity and preventing them from performing their work activity.

According to Torres et al.[26], the impact of the disease goes beyond its effect on the subject. "The consequences of the disease are the loss of professional identity, the restructure of daily and economic life, the feeling of uselessness and disability, social isolation, insecurity and the fear of losing the job"[26].

For some participants of the study, the products and substances, especially the drugs, are considered facilitators by the subjects. Pharmacological resources play an important role in the control of pain. A lot of subjects use drugs for pain relief and sleep disorders, anxiety, and depression simultaneously, causing an impact on the psychological/emotional and social context[32].

The attitude of family members, healthcare professionals, colleagues, neighbors, friends, transportation services and healthcare services and policies are considered by these participants as facilitators of their daily life. Contrary to Torres et al.[26], in which the individuals studied had psycho-affective alterations that impacted the family relationship. Social security and employment services, systems and policies are pointed out by the subject as barriers. No studies were found in the national and international literature relating CRPS I with social security policies and employment issues.

It was possible to observe in this study that subjects affected by CPRS I suffer a significant disruption in daily life, interfering directly in all areas of occupational performance.

The rehabilitation process of these subjects must be included in multidimensional programs, addressing the biopsychosocial characteristics and a multidisciplinary team. Such programs should include biological, psychological/emotional and social aspects, and also provide guidance on CPRS I and its magnitude[29]. It is known that these subjects with CPRS I need therapeutic follow-up involving a multidisciplinary team. Physiotherapy and Occupational therapy professionals play a fundamental role in the rehabilitation process and effective reinsertion of subjects with CPRS I in the labor market. However, it is observed that this topic is little discussed in both professions. Therefore, little has been discussed about the rehabilitation process of this syndrome. In this sense, it is necessary to have other studies addressing the importance of physical and occupational therapy in the treatment of CPRS I.

CONCLUSION

This study showed that CPRS I seriously affects the life/health condition and work activity of the subjects. The presence of pain and physical damages resulting from this syndrome affect he functional capacity of workers directly. This disease brings limitations in daily, leisure and work activities, seriously impacting the occupational roles of the subjects affected by this syndrome.

REFERENCES

1. Miranda CC, Seda Junior LF, Pelloso LR. Nova classificação fisiológica das dores: o atual conceito de dor neuropática. Rev Dor. 2016;17(Suppl 1):2-4.
2. International Association for the Study of Pain. International Association for the Study of Pain. Seattle: IASP. 2011. Disponível em: < http://www.iasp-pain.org//AM/Template.cfm?Section=Home>. Acessado em 27 de jun. 2017.
3. Patterson RW, Li Z, Smith BP, Smith TL, Koman LA. Complex regional pain syndrome of the upper extremity. Hand Surg Am. 2011;36(9):1553-62.
4. Artioli DP, Gualberto HD, Freitas DG, Bertolini GR. Tratamento fisioterapêutico na síndrome complexa de dor regional tipo I: relato de caso. Rev Bras Clin Med. 2011;9(1):83-6.
5. Zakka TR, Yeng LT, Rocha RO, Teixeira MJ. Síndrome complexa de ror regional e gestação. Relato de caso. Rev Dor. 2011;12(1):74-7.
6. Ponte AS, Duarte BS, Godoy MC, Delboni MC, Costa TR. Síndrome complexa de dor regional do tipo i do membro superior: tratamento baseado no estresse muscular de tração e compressão ativa: um estudo de caso. Cad Ter Ocup UFSCar. 2015;23(1):3-13.
7. Associação Internacional para o Estudo da Dor. Guia para o Tratamento da Dor em Contextos de Poucos Recursos: Material educativo escrito por uma equipe de autores multidisciplinar e multinacional, para distribuição geral aos prestadores de cuidados de saúde. Seattle: IASP, 2010.
8. Sá K, Baptista AF, Matos MA, Lessa I. Prevalência de dor crônica e fatores associados na população de Salvador, Bahia. Rev Saúde Pública. 2009;43(4):622-30.
9. Coelho CCS, Alves CRP. Distrofia Simpático Reflexa. In: Freitas PP. Reabilitação da Mão. São Paulo: Atheneu; 2005. 459-79p.
10. Gaspar AT, Antunes F. [Type I complex regional pain syndrome]. Acta Med Port. 2011;24(6):1031-40. Portuguese.
11. Moussa L, Santos CA, Cordeiro DF, Gonçalves GL. Intervenção fisioterapêutica na síndrome dolorosa complexa regional: uma revisão de literatura. Rev Cient Interdisc. 2016;2(3):61-73.
12. Cordon FC, Tsa LL. Complex regional pain syndrome: epidemiology, pathophysiology, clinical manifestations, diagnostic tests and therapeutic proposals. Rev Bras Anestesiol. 2002;52(5):618-27.
13. Barros N. Qualidade de vida no doente com dor. In: Teixeira MJ. Dor: contexto interdisciplinar. Curitiba: Maio; 2003.
14. Di Nubila HB, Buchalla CM. O papel das Classificações da OMS - CID e CIF nas definições de deficiência e incapacidade. Rev Bras Epidemiol. 2008;11(2):324-35.
15. Farias N, Buchalla CM. A Classificação Internacional de Funcionalidade, Incapacidade e Saúde da Organização Mundial da Saúde: conceitos, usos e perspectivas. Rev Bras Epidemiol. 2005;8(2):187-93.
16. Organização Mundial da Saúde - OMS. Classificação Internacional de Funcionalidade, Incapacidade e Saúde. São Paulo: Editora da Universidade de São Paulo; 2008.
17. World Health Organization - WHO. Cidade: Santa Maria. Disponível em: <http://www.who.int/classifications/icf/en/>. Acesso em: 21 ago. 2015.
18. Raja SN, Grabow TS. Complex regional pain syndrome I (reflex sympathetic dystrophy). Anesthesiology. 2002;96(5):1254-60.
19. Costa VV, Oliveira SB, Fernandes MC, Saraiva RA. Incidência de síndrome dolorosa regional após cirurgia para descompressão do túnel do carpo: existe correlação com a técnica anestésica realizada? Rev Bras Anestesiol. 2011;61(4):429-33.
20. Walsh IA, Corral S, Franco RN, Canetti EE, Alem ME, Coury HJ. [Work ability of subjects with chronic musculoskeletal disorders]. Rev Saude Publica. 2004;38(2):149-56. Portuguese.
21. Castro MM, Quarantini LC, Daltro C, Pires-Caldas M, Koenen KC, Kraychete DC, et al. Comorbidade de sintomas ansiosos e depressivos em pacientes com dor crônica e o impacto sobre a qualidade de vida. Rev Psiq Clín. 2011;38(4):126-9.
22. Miranda NA, Magalhães CA, Moretão DI, Stival MM, Lima LR. Dor crônica em trabalhadores de Enfermagem de uma unidade de terapia intensiva. J Nurs Health. 2012;2(1):50-62.
23. Antunes RS, Macedo BG, Amaral TS, Gomes HA, Pereira LS, Rocha FL. Dor, cinesiofobia e qualidade de vida em pacientes com lombalgia crônica e depressão. Acta Ortop Bras. 2013;21(1):27-9.
24. Azambuja MI, Tschiedel PS, Kolinger MD. Síndrome miofascial e síndrome de dor regional complexa em pacientes com LER/DORT atendidos em ambulatório de saúde do trabalhador do SUS – identificação e caracterização clínica dos casos. Rev Bras Med Trab. 2004;2(3):176-84.
25. Rocha QMW. Diagnóstico Diferencial das Dores de Membros. In: Pitta GBB, Castro AA, Burihan E, (editors). Angiologia e cirurgia vascular: guia ilustrado. Maceió: UNCISAL/ECMAL & Lava; 2003.
26. Torres MP, Clement ST, Cappell SD, Dohlman HG. Cell cycle-dependent phosphorylation and ubiquitination of a G protein alpha subunit. J Biol Chem. 2011;286(23):20208-16.
27. Henwood P, Ellis JA. Chronic neuropathic pain in spinal cord injury: the patient's perspective. Pain Res Manag. 2004;9(1):39-45.
28. Silva VG, Jesus CA. Biopsychosocial characteristics of patients with neuropathic pain following spinal cord trauma injury. Case reports. Rev Dor. 2015;16(3):235-9.
29. Silva JA, Ribeiro-Filho NP. A dor como um problema psicofísico. Rev Dor. 2011;12(2):138-51.
30. Fuchs M, Cassapian MR. A Terapia Ocupacional e a dor crônica em pacientes de Ortopedia e Reumatologia: revisão bibliográfica. Cad Ter Ocup UFSCar. 2012;20(1):107-19.
31. Azambuja MI, Tschiedel P, Kollinger MD, Oliveira PA, Mendes JM, Bassanesi SL. Síndrome miofascial e síndrome de dor regional complexa em uma amostra de casos de LER/DORT atendidos em um ambulatório de saúde do trabalhador do SUS (CIAST) em Porto Alegre: fatores de riso ocupacionais associados às síndromes de dor regional. Rev Bras Med Trab. 2004;2(4):302-9.
32. Roggeri D, Saramin C, Terrazzani G, Zusso M, Giusti P, Chinellato A. Resource consumption and costs of treating pain in patients affected by cancer in a district of northeast Italy. J Italian Pharmacol Soc. 2007;56(4):329-34.