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Important aspects of diagnosing work-related musculoskeletal disorders (WMSD) and fibromyalgia

Aspectos relevantes no diagnóstico de DORT e fibromialgia

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Abstract

Background: Chronic and diffuse pain is present either in Repetitive Strain Injuries (RSI)/Work-related Musculoskeletal Disorders (WMSD) and Fibromyalgia, leading to difficulties in determining preventive and therapeutic measures by health professionals who deals with patients presenting these disorders. **Objectives:** Analyze the relevant aspects in the emission of the diagnosis of WMSD and Fibromyalgia in the perception of physicians assistants and experts. **Methods:** In this study 75 physicians (36 assistants and 39 experts) answered structured and open questions about aspects that they consider relevant to the establishment of diagnosis. **Results:** Results were correlated by Spearman's test (α=0.05) and submitted to the Collective Subject's Speech method. Assistant physicians tended to emphasize the factor "clinical conditions and time elapsed", whilst expert tended to indicate "occupational history" for definition of the WMSD diagnosis. For the diagnosis of Fibromyalgia, experts physicians tended to emphasize the factor "amount of tender points", whilst the assistant physicians indicated "pain characteristics". Despite of these slight discrepancies, the results from both groups were highly correlated (r=0.85; p=0.01) when participants were asked to indicate common and different relevant aspects for the diagnosis of both syndromes. Furthermore, the physicians agreed about the necessity of risk investigation at work for a more accurate diagnosis. **Conclusions:** In order to standardize preventative and therapeutic measures adopted by physicians, physiotherapist and other professional evolved with these syndromes it would be advisable to make the international criteria for Fibromyalgia diagnosis better know, and also to provide better training on the identification of the adverse effects of inadequate work conditions on the musculoskeletal system to health professional.

Key words: chronic pain; diagnosis; preventive measures.

Resumo

Contextualização: A dor crônica e difusa encontra-se presente tanto nas Lesões por Esforços Repetitivos (LER)/Distúrbios Osteomusculares Relacionados ao Trabalho (DORT) como na Fibromialgia, trazendo dificuldades diagnósticas, preventivas e terapêuticas para profissionais da saúde envolvidos no tratamento de acometidos. **Objetivos:** Analisar os aspectos relevantes na emissão dos diagnósticos de DORT e Fibromialgia na percepção de médicos assistenciais e peritos. **Métodos:** Neste estudo, 75 médicos (36 assistenciais e 39 peritos) responderam a questões estruturadas e abertas sobre aspectos considerados relevantes na emissão de diagnóstico destas síndromes. **Resultados:** As respostas dos dois grupos foram correlacionadas pelo teste de *Spearman* (α=0,05) e submetidos ao método de Discurso do Sujeito Coletivo (DSC). Os médicos assistenciais tenderam a valorizar o fator "quadro clínico e tempo de evolução", enquanto os médicos peritos tenderam a apontar "história ocupacional" na definição do diagnóstico de LER/DORT. Já para o diagnóstico de Fibromialgia, os peritos tenderam a apontar o fator "quantidade de *tender points",* enquanto os médicos assistenciais indicaram mais frequentemente "característica da dor". Apesar dessas discretas discrepâncias, alta correlação (r=0,85, ρ=0,01) foi identificada entre os grupos quando apontaram aspectos comuns e distintos no estabelecimento do diagnóstico para as duas síndromes. Os relatos também enfatizaram a necessidade da investigação de riscos presentes no trabalho para a definição de um diagnóstico mais preciso. **Conclusões:** Nesse sentido, objetivando uniformizar condutas avaliativas, preventivas e terapêuticas para médicos, fisioterapeutas e demais profissionais envolvidos no atendimento dessas síndromes, seria recomendável maior divulgação dos critérios utilizados por entidades internacionais no diagnóstico da Fibromialgia e a inclusão de treinamento para identificação de efeitos adversos de condições inadequadas do trabalho na formação desses profissionais.

Palavras-chave: dor crônica; diagnóstico; medidas preventivas.

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Introduction

Repetitive Strain Injuries (RSI) and/or Work-related Musculoskeletal Disorders (WMSD) and fibromyalgia are syndromes which affect a large number of individuals[1,2]. These syndromes have a multi-factorial etiology and, therefore, they are of great diagnostic complexity. The individuals diagnosed with these two syndromes share the symptoms of pain and discomfort in different parts of the body. In addition to diffuse pain, common symptoms can also include sleep disturbances, anxiety, depression, fatigue, vertigo, headaches and irritable bowel syndrome[13]. In spite of the common aspects, these two syndromes have very different legal, preventive and therapeutic implications, which indicates the need for diagnostic clarity so that appropriate preventive and therapeutic measures can be established to guide physical therapists and other health professionals.

In conceptual terms, "RSI/WMSD is a syndrome related to work, characterized by the occurrence of several symptoms, concomitant or not, such as pain, paresthesia, feeling of heaviness and fatigue, which appear insidiously []"[4].

In contrast, fibromyalgia is defined as "a chronic, non-inflammatory syndrome, characterized by the presence of diffuse pain throughout the body, fatigue, sleep and humor disturbance and an exacerbated sensibility to touch in certain areas referred to as tender points"[5].

While defining the diagnosis criteria of fibromyalgia by The American College of Rheumatology[2], the following were proposed: diffuse pain for at least 3 months in 11 or more of the 18 established tender points, submitted to an applied pressure of 4Kg/cm^2. When the patient described the pressure as "painful", the tender point was considered positive. The pain was considered diffuse by the authors when it was present: in both sides of the body, right and left; above and below the waist; in the gluteal area of both sides of the body and in the axial skeleton (cervical, thoracic and lumbar spine and anterior part of thorax). A patient will be considered fibromyalgic if both criteria described above are satisfied. Simultaneously, the presence of a second clinical pathology does not exclude the diagnosis of fibromyalgia.

That last premise apparently lead some researchers to try to reclassify conditions initially diagnosed as LER/DORT and categorize them as fibromyalgia. According to these reports, WMSD would not exist as an independent clinical entity[6] and would be frequently simulated[7]. In contrast, wide and discerning literature reviews conducted by Strock[8] and Bernard[1] indicate strong epidemiological evidences between WMSD and occupational factors. Finally, preventive and control measures adopted in situations of occupational risk have been considered beneficial in reducing the number of musculoskeletal injuries among workers[9].

Thus, if the chronic and diffuse pain present in RSI/WMSD and fibromyalgia can generate common consequences, including work disability, reduction in family income and quality of life[10], and given the common and different clinical, conceptual and control implications for both, it becomes necessary to determine which parameters have been used by doctors to diagnose these syndromes.

Therefore, this study aimed to evaluate the relevant aspects for the diagnosis of these syndromes according to physicians and occupational health experts of the National Institute of Social Service (INSS). The knowledge of this perception can lead to the establishment of guidelines for better training of professionals involved in the care of individuals who suffer from RSI/WMSD and fibromyalgia.

Methods

Participants

Seventy-five doctors participated in this study, 39 of which were occupational health experts working at the Social Welfare Agencies (APS) of the cities of João Pessoa (PB), São Carlos (SP), Araraquara (SP) and Rio Claro (SP), and 36 were physicians who worked at orthopedics and rheumatology clinics in the cities of João Pessoa (PB), São Carlos (SP) and Araraquara (SP).

The participants were invited via a letter that explained, in general terms, the objectives of this study, therefore, a convenience sample was used. The sample includes 100% of the experts from São Carlos and Araraquara, 80% from Rio Claro and 80% from João Pessoa. Approximately 70% of the physicians from the mentioned cities participated in this research.

The two groups of professionals took part in the research through a questionnaire with structured and open questions about the establishment of the RSI/WMSD and fibromyalgia diagnosis.

The study project was evaluated by the Research Ethics Committee of Universidade Federal de São Carlos and approved under protocol number 345/2006.

Instruments

Two questionnaires were used: one for the physicians and another for the experts. The physicians answered a questionnaire with three questions. The first question referred to the main aspects considered relevant to making a RSI/WMSD diagnosis. The second question evaluated the most valued aspects for the fibromyalgia diagnosis. For these two

questions, the physicians could give other suggestions not mentioned in the proposed items. They were also asked to place the answers in order of diagnostic importance and state the reason for selecting the most important factor. The participants answered the questions without interruption by the researcher. The third was an open question that asked: "Considering a patient with fibromyalgic characteristics and occupational history suggestive of WMSD, how would you classify him/her?".

A questionnaire with the same two initial questions cited above was applied to the INSS experts. The third question was suppressed due to the fact that the experts already receive the patient with a diagnosis.

The questions about the RSI/WMSD diagnosis were based on Normative INSS Ruling 98[4]. The questions about fibromyalgia were based on the criteria established by the American College of Rheumatology[2] to evaluate the clinical aspects of the syndrome in the version validated for the Brazilian population[5]. After the objectives of the study were explained, the participants signed a consent form.

Instrument evaluation

Both questionnaires were previously answered by five doctors who did not take part in the collection. However, they evaluated and contributed to a better consistence and clarity of the instruments' questions.

Analysis of the data

Initially, a descriptive analysis of the data was conducted in order to establish a sequence of importance and frequency of answers for the related factors in the structured questions for each professional group. For this analysis, linear weighting was used following rational logic, as the participating professionals were asked to place the answers in order of importance. Thus, weights were attributed to the answers, in the following order: 1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9 and 1/10 from the first to the tenth factor, respectively.

The Spearman test was used to correlate the answers on the relevant aspects for the RSI/WMSD and fibromyalgia diagnoses. The α level considered for the analyses was set at 0.05. The SPSS program was used to perform the analyses.

The answers to the open questions were analyzed using a technique called Collective Subject's Discourse (CSD) which intends to organize verbal qualitative data[11]. Discourse analysis is a methodological instrument which belongs to the field of content analysis[12]. The CSD technique tries to not separate the individual discourses and classifies the answers by gathering them in a collective discourse, grouping the set of thoughts in discursive content form. The method is usually employed in an interview form, but in the present study it was applied by questionnaires.

To evaluate the reliability aspects in this analysis, two examiners summarized the answers in texts and compared them to each other. Of four analyzed questions, only one had discrepancies. A third examiner moderated and arbitrated the discussion between the two examiners about these discrepancies in order to reach a consensus.

Results

Figures 1 and 2 show the association between the answers of experts and physicians for the factors they consider important when making RSI/WMSD and fibromyalgia diagnoses, respectively.

The results indicated high correlation between the answers of both groups; however, the emphasis given to the criteria that lead to RSI/WMSD and fibromyalgia diagnoses vary discreetly between experts and physicians. Although both groups valued the factors of "clinical conditions and time elapsed" and "occupational history", the factor of "clinical conditions and time elapsed" was more valued by the physicians, while the factor of "occupational history" was more valued by the experts. The analysis of the second aspect most valued by both groups displayed the same criteria in an inverted order (Figure1).

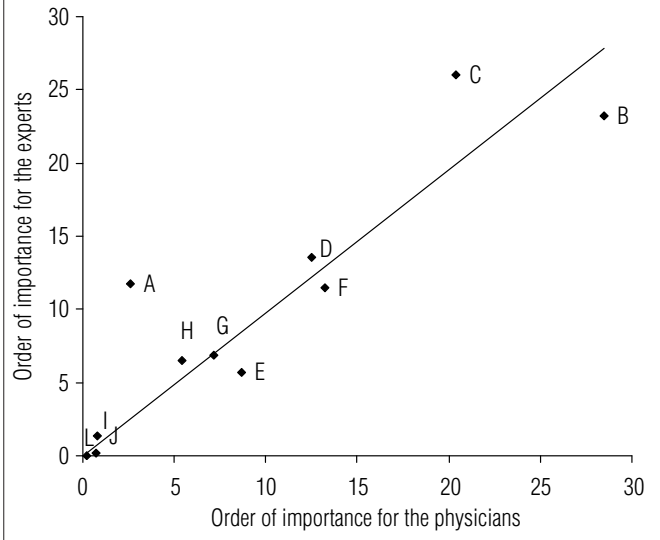
Considering the option of presentation of other aspects, the physicians' group mentioned the factor of "simulation aspect as judicial purpose" and the experts' group cited the factor of "secondary gains".

The items most valued by the two groups of physicians for the fibromyalgia diagnosis were "pain characteristics" and "amount of tender points". However, the physicians' group valued the "pain characteristic" more, while the experts indicated the "amount of tender points". The second item most valued by the physicians was "psychological disorders" while the "pain characteristics" was the one valued by the experts (Figure 2).

Thus, there is a general tendency among experts to value functional aspects such as occupational history, functional disability and issue of Workplace Accident Certificate (WAC), while the physicians tended to discreetly value clinical and psychological aspects.

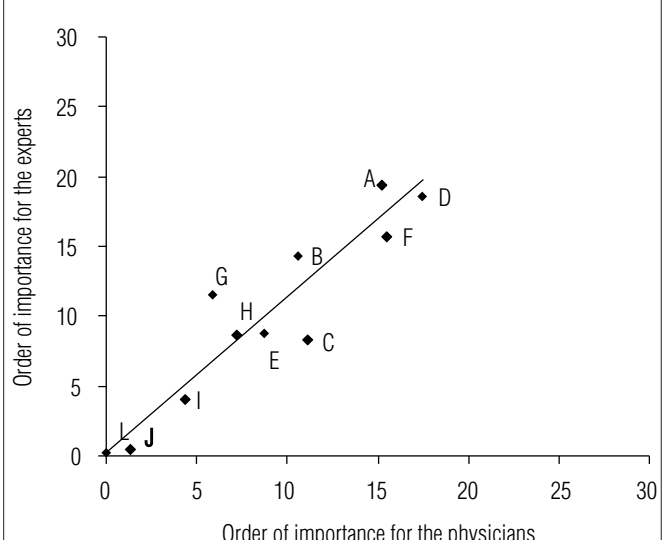
Discourse analysis

The CSD analysis regarding the justification of the choice of the most important factor in making a RSI/WMSD diagnosis for the physicians and experts produced the following content:



A (issue of the Workplace Accident Certificate); B (clinical condition and time elapsed); C (occupational history); D (functional disability); E (disability for activities of daily life - ADLs); F (pain characteristic); G (patient's disposition); H (complementary, exams); I (other factors); J (secondary gain); L (simulation, judicial purpose). * p=0.01; r=0.855.

Figure 1. Correlation between the physicians and experts for order of importance of the factors for the RSI/WMSDs diagnosis.



A (number of tender points); B (distribution of these points); C (minimum time of painful manifestation); D (pain characteristic); E (sleep disturbances); F (psychological disturbances); G (functional disabilities); H (occupational history); I (complementary exams); J (other factors); L (appetite changes). * p=0.01; r=0.85.

Figure 2. Correlation between the physicians and experts for order of importance of the factors for the fibromyalgia diagnosis.

Physicians

"The RSI/WMSD diagnosis is primarily clinical and occupational, and it is necessary to evaluate mainly the clinical condition and correlate it with the occupational history. The clinical condition is the most important because it brings information such as the site and intensity of pain, the manifestation characteristics and the time elapsed. The complementary exams should only be indicated in cases of questions about the diagnosis, because the clinic is sovereign and, in most of the cases, an occupational factor is the trigger".

Experts

"It is necessary to make a connection between the diagnosis and the patient's occupational history, to know the workplace, how they perform the tasks and execute the work activity and to correlate the risk factors with the injury to determine the cause and effect accordingly. This connection should be done because the work activity and time have importance in triggering RSI/WMSD. The occupational history is crucial to find the diagnosis, as is a clinical condition of continuous and repetitive strain at work regardless of the WAC, which does not correspond to reality".

The synthesis of both groups' discourses seems to reinforce the importance given to the clinical and functional aspects as well as occupational aspects in the RSI/WMSD diagnosis, by physicians and experts, respectively. However, the agreement between both groups must also be pointed out.

Regarding the physicians' answers to how they would classify a patient with fibromyalgic characteristics and suggestive occupational history of WMSD. The CSD analysis yielded the following description:

"It is very difficult to carry out the clinical differentiation. Although they are completely distinct pathologies, they can be confused as the symptomatologies are equivalent. If both conditions coexist, the patient can be classified as a fibromyalgia and WMSD sufferer; due to the possibility of concomitance, the same patient with fibromyalgic conditions can occasionally display a work-related regional disorder. Therefore, it would be ideal to maintain both diagnoses at first, until the opportune moment when the actual pathology can be detected. The differentiation can be made through the investigation of the type of work to discard the possibility of WMSD, before making a fibromyalgia diagnosis. Moreover, the fibromyalgic patient is sharply influenced by emotional factors".

When the syndromes are associated, the synthesis of the answers of the discourses suggests a clear perception of the interlocking of symptoms and the need to evaluate the occupational aspects in both cases. The physicians' answers also consider that fibromyalgia is closely related to individual (emotional) aspects, thus indicating that the

differentiation could be made through the analysis of the type of work.

Discussion

The results showed high correlation among the answers of the expert and physician groups regarding which factors are more valued when making RSI/WMSD and fibromyalgia diagnoses. In spite of this strong correlation, there were some variations.

When the valued factors for diagnosing RSI/WMSD and fibromyalgia were compared, there was consistence between groups in the valuing of different aspects for each syndrome, respectively. The only overlapping aspect was the chronic pain present in the factor of "clinical condition and time elapsed" (RSI/WMSD) as well as in "pain characteristics" (fibromyalgia). However, this overlapping was naturally expected, given that pain is a fundamental element in the diagnosis of both syndromes[13,14]. Another presumably common characteristic is the fact the pain is diffuse and present in different parts of the body. In the case of fibromyalgia, this is a necessary requirement for diagnosis, while in RSI/WMSD, it is a relatively common aspect. The "wind-up" phenomenon is also recognized, in which the pain spreads and is transferred from the injured area to the healthy area through the adoption of antalgic postures and movements[15,16].

Studies based on large numbers of individuals have shown that the prevalence of chronic pain is very high in populations of different areas of the world[17]. For some authors, fibromyalgia should not be considered as a diagnosis[18] because it simply describes more severe phases of chronic pain, and this label can reduce the chances of recovery. For other authors[19], however, the publication of the classification criteria of this syndrome by the American College of Rheumatology increased the opportunities of research on the basic mechanisms which unleash the syndrome and improved the chances of controlling its symptoms. In spite of the controversy surrounding this syndrome, none of the authors question the importance of evaluating the symptoms which, for some, should include other criteria, besides pain, for a better characterization of the condition[19], nor do they question the need for more appropriate treatments for fibromyalgic patients.

RSI/WMSD can also become a chronic syndrome which, in its more advanced phases, starts to show symptoms with a difficult resolution[20]. The main difference between both syndromes seems to reside in the fact that RSI/WMSD can be prevented if its risk factors are properly identified and controlled[21]. That is obviously a great challenge because of the multi-factorial source of this syndrome and of the multiplicity of possible clinical manifestations when the musculoskeletal system is overloaded in occupational settings[22]. The recognition of the "occupational history" aspect in the RSI/WMSD diagnosis by the two groups of physicians shows an appreciation of the need to consider the work-related risks to which the experts seem to be more attentive.

In this sense, Hormain[23], citing Article 2 of Resolution 1488/1998 of the Federal Council of Medicine (CFM), considers that the physicians who treat the hard-working patient should take into account not only the physical and psychological exam, but also aspects such as work organization, identification of risks and personal experiences to establish the causal link. This author also considers that there are other fundamental points in the characterization of RSI/WMSD such as the occupational anamnesis, the clinical exam and inspection of the workspace and of the physician's reports. Thus, it would be necessary to train health professionals on how to make an ergonomic assessment of the work performed by patients with RSI/WMSD.

Another aspect needed to minimize WMSDs would be the increase of workplace inspections, so that the preventive and risk control recommendations prescribed by law are actually used and applied[24]. Although many companies seek to offer some assistance to their employees, it is often limited to hiring third party professionals who follow up quick brakes at work and implement preventive exercise programs. Comprehensive measures which involve physical and organizational changes would be necessary to actually reduce the risks found in many workplaces[25].

Also regarding the choice of the most important factor, the physicians give little attention to the issue of a WAC. This condition can lead to the notion of noncompliance with pertinent regulations. Normative INSS Ruling 98 states that, if there is suspected WMSD, even without a work-related disability, a WAC has to be issued for the record or basis and characterization of the causal link when disability is present. This document is essential to the worker for legal and social security purposes. Hormain[23] corroborated this aspect and suggests that work factors give a foundation to the causal link and, therefore, to the diagnosis and to the disability.

Although experts emphasize the importance of the number of tender points to make a diagnosis of fibromyalgia, this aspect does not actually seem to be considered in practice. To do that, the experts would have to apply pressure to those points during the examination. According to them, however, the evaluation is usually made to confirm a diagnosis.

Two aspects can be pointed as limitations in this study. One of them is the fact that a convenience sample was used due to

the difficult access to a random number of physicians. Therefore, cities with easier access to physicians by the researchers were chosen. They were also chosen because of the frequent need of several visits to obtain a single interview due to the physicians' busy schedule.

Another aspect is the difference in the alternatives presented for the possible characterization of the main aspects considered in the diagnosis of RSI/WMSD and fibromyalgia. This may have reduced the chances of conceptual overlapping (and confusion) between the two, which was part of the focus of this research. However, the choice of the possible answers was based on legislation and in different documents which were internationally accepted for the characterization of each syndrome. A mitigating factor is that the questionnaire also included open choices in case other factors, common to both syndromes, had to be added. However, the overlapping was not confirmed in the results; except for the two answers which referred to secondary gains/simulation, the physicians chose the alternatives provided by the questionnaires. In spite of that, the physicians recognized the possible confusion factors among both, suggesting that this overlapping can be minimized by the evaluation of occupational aspects.

The future development of other studies that seek to better investigate this overlapping is necessary. Among possible aspects which could be studied are the inclusion of open questions to better explore this perception and, at least, a few similar questions for both syndromes, to explicit the level of interlocking between them.

Conclusion

In short, there was great consistence among those physicians' answers when they identified various common aspects of diagnosing these two syndromes and, above all, there was a clear need to investigate aspects of risks found in the workplace for the definition of a more accurate diagnosis. Considering the multifactorial sources of RSI/WMSD and the still unidentified sources of fibromyalgia, more value should be given to recognizing the importance of risk factors found in the workplace and possibly including them in the treatment and control strategies if we are to improve the chances of finding a resolution for both syndromes.

To standardize assessment procedures in the clinical analysis of RSI/WMSD, it becomes imperative to provide better support to training physicians to ensure greater clarity and safety for the diagnosis of RSI/WMSD. It becomes equally necessary to widen the health professional's perception of the adverse effects of inadequate work conditions on the musculoskeletal system. Physicians and other health professionals in training, particularly physical therapists, have been working progressively with patients with occupational injuries.

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