95 - OCCURRENCE OF THE OSTEOMUSCULAR SYMPTOMS IN WORKERS IN THE METALLURGIC INDUSTRY

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INTRODUCTION

Currently, the repetitive strain injury (RSI) or work-related musculoskeletal disorders (WMSD) reach different categories of workers and can be defined as a set of diseases affecting muscles, tendons, nerves and vessels of the upper and lower limbs and who have direct relation with the work demands, the physical environments and the work organization (CHIAVEGATO FILHO & PEREIRA JR, 2004).

According to a survey conducted in 2008, which mapped the main diseases that cause work absence in Brazil, 4% of 32.5 million Brazilian workers received the sickness for more than 15 consecutive days. One of the main reasons are the oesteomusculares diseases like backaches (LECLERC, 2011).

Within this framework, the pain is often described in books as one of the leading causes of disability, being considered a health problem both by physical appearance as the great socio-economic impact and consequent impairment of quality of life, responsible for lost working days and high medical costs (CHALOT et al, 2006).

According to Monteiro (1998) the LER/DORTs are diseases that afflict much of the working population, no longer only with typists as previously thought, but with incidences in several other classes of workers, such as telephone operators, assembly line workers, metallurgical industry and others.

The working class of the metallurgists are perfect examples of what the work division produced, therefore executing their activities every day, making the same thing, in the same way, with the same repetitive efforts, some even for many years. This type of activity causes not only physical, but also mental and intellectual fatigue, even in higher proportions (LIMA, 1997).

Thus, the issue is justified by the importance of knowing and characterizing the occurrence of musculoskeletal symptom profiles in metallurgical industry workers affected by DORT. In addition to predicting the onset of these disorders and identifing their triggers, as well as a way to target prevention and health recovery. To minimize the occurrence of new cases, in addition to providing quick and effective return of workers away from their industrial jobs and daily life.

The present study was carried out with the purpose to identify and characterize the musculoskeletal symptoms presented by workers from the metallurgical industry in the Campos Gerais region.

METHOD:

The focus of the research was with painters, a section of the metallurgical industry in the city of Ponta Grossa, Parana. The population is composed of 91 employees, a sample of 74 employees being withdrawn (95% significance), that develop functions of the positions they occupy. For the data collection, a questionnaire was applied with individual data and the Nordic Musculoskeletal Symptoms Questionnaire (QNSO), with the objective of identifying the occurrence of ostemusculares disorders. After having responded to these two questionnaires, and according to the frequency of pain or discomfort pointed to by the Nordic Questionnaire, the Mcgill questionnaire was used to asses multidimensional chronic pain, along with the Visual analog scale of pain (EVA) to measure its intensity. After the Roland Morris questionnaire (QRM) was used to evaluate the functional incapacity as a result of lower back pain, pointed out in the QNSO. The results were presented in the form of graphs and represented in numeric form, in percentages.

RESULTS

With the implementation of the data collection tools, the following results were obtained: in relation to sex, 100% of the sample is made up men; the average age is 31 years , the median is 28 years and the standard deviation is 11; According to figure 1, regarding their marital status, 65% are married.

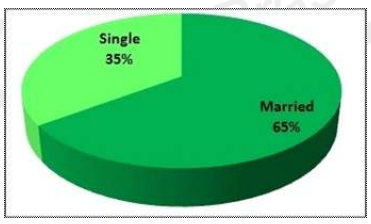

Figure 1- Marital status

Figure 2 shows the prevalence of the education level, with those that completed high school at 36%.

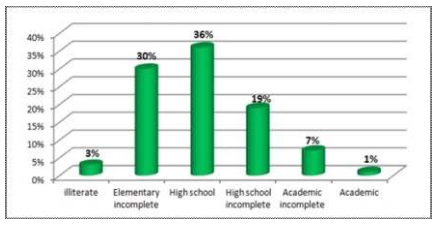

Figure 2 - Education level

The data found with the application of the QNSO showed that only 2% did not have any kind of pain and/or discomfort in the musculoskeletal system, while most at 98% reported pain. Such reports were in most cases with multifocal aspects, 89%

indicated the presence of pain in different regions of the body at the same time and only 11% in one region of the body.

With regard to the anatomical location, figure 3 presents the location of the osteomuscular systems, related to the period of the last twelve months.

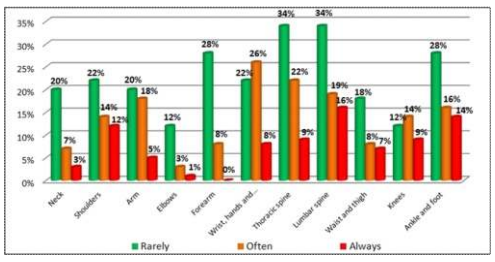

Figure 3 - Frequency of occurrence of musculoskeletal symptoms by body region

The results indicated that the regions most affected were the lumbar spine region with 69%, followed by thoracic spine region with 65%, ankle and foot with 58%, wrist, hands and fingers with 56%, shoulders with 48% , arm with 43%, forearm with 36%, knees with 35%, waist and thigh with 33%, neck with 30% and elbows with 16%. According to the QNSO, figure 1 shows the frequency of musculoskeletal symptoms, such as pain, discomfort or tingling by body region, over the past 12 months.

For workers who reported feeling pain, discomfort or numbness in the lumbar spinal region, according to the QRM, on a scale from 1 to 24 points, in which zero corresponds to a person without complaints and the maximum value to a person with serious limitations. It was obtained an average score of 3 points, median of 2 and standard deviation of 3.8 points demonstrating that workers had a low functional impairment related to their pain.

With the implementation of the McGill questionnaire, the multidimensional characteristics of pain were obtained, in which the sensitive group refers to the mechanical properties, thermal, spatial and vividness of pain; the affective group, describes the affective dimension in aspects of tension, fear and Autonomic responses; the evaluative group, allows the expression of the overall evaluation of the painful experience; and the miscellany group, is considered mixed.

Figure 4 presents the multidimensional characteristics of chronic pain of some workers, pointed to by the McGill questionnaire.

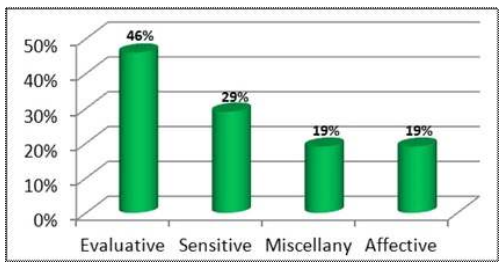

Figure 4 - Assessment of multidimensional pain

In the multidimensional assessment of pain, it was observed that the category that received the highest percentage was the evaluative category, which is the one that allows the expression of the overall evaluation of the painful experience.

Still with regard to the characterization of the pain of workers suffering from chronic pain, the painful sensation intensity measured by Visual Analog Scale of pain, has a mean of 6.8 and a standard deviation of 1.8.

DISCUSSION

Several studies of books referred to in that the musculoskeletal disorders affect mostly women, however, in this study, there is a prevalence of males, since according to Iida (2005) women workers are rare in these types of jobs, however, over time their participation tends to increase. According to the author, there are more women in the textile industry, food industry, electronics, education, health, Commerce and in Office work. According to the Ministry of health (2001), the DORTs affect youth and women who carry out activities which requires greater repeatability and effort, mainly in the metallurgical industry, banking and merchant, assemblers and typists.

The results found in this study showed a very high prevalence of musculoskeletal symptoms such as pain, discomfort or tingling. The body region most affected was the lumbar spine; followed by the rib cage; ankle and foot; wrist, hand and fingers; shoulders; arm; forearm; knees; waist and thigh; and elbow. Agreeing with Picoloto & Silveira (2008), which aimed at knowing the musculoskeletal symptoms presented by workers of a metallurgical industry in the city of Canoas-RS, it was found that 75.2 percent of workers surveyed reported some kind of musculoskeletal symptoms in the past twelve months.

In order to verify the prevalence of musculoskeletal disorders in 55 individual workers of a metallurgical company-furniture of the serra gaúcha, 78.2% of employees reported some kind of pain or discomfort in certain regions of the body, and the regions with the most discomfort reported were the neck, right shoulder and bottom-back, with 24% (CANALI, 2010).

Other similar studies found in books, developed with industry workers, of different branches, such as Trinity et al (2012), on the occurrence of pain in textile industry workers, found that, in relation to the body region, 60.93 percent of the workers interviewed had the highest pain complaints in the lower limbs, followed by the lumbar region with 55.2% and shoulders with 46.87%. Maciel, Fernandes and Medeiros (2006), in a similar study, also with professionals in the textile industry, found that 62.3% reported painful symptoms in more than one location, and only 37.7% of employees reported no pain or pain felt in only one body region. In relation to the regions of greatest complaints of pain, the portions of the cervical and thoracic spine, legs and shoulders were the most cited.

In the food industry, Rumaquella (2009) identified the occurrence of complaints of pain in the spinal region of manufacturing employees, noting that 46.6% of workers, referred to some kind of musculoskeletal symptoms in some regions of the vertebral column, with 3.3% of respondents referred to the pain in the cervical region, 16.7% have reported pain in the dorsal region and 33.3% have reported pain in the lumbar region.

Hussain (2004) has 461 employees that work in a truck assembly line in a cross-sectional study performed in England in 2003, where it was found through the QNSO that 79% of employees had some kind of musculoskeletal problem last year.

In the research here, there is a high incidence of musculoskeletal symptoms in industry workers, including metallurgical industry. The higher prevalence of musculoskeletal symptoms is usually the spine, particularly in the lumbar region.

This data demonstrates the importance of the lumbar region for work. It is a support for the body and rotation of the torso. It is often used inappropriately by bad posture and weight load.

FINAL CONSIDERATIONS

It is important to consider that the activities developed in industrial environment, usually characterized by the presence of biomechanical factors such as handling and cargo transport, use of weight/strength leading to physical exertion and, generally, high repetitions.

Symptoms related to musculoskeletal pain in the analyzed functions are present in the daily lives of individuals researched causing pain and discomfort, and may even develop into RSI/DORTs.

The scenario researched, identifies the need to promote guidelines, ergonomic analyses and preventive actions targeting the most appropriate way for the employee to develop their jobs, in order to eliminate or minimize the incidence of musculoskeletal disorders.

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OCCURRENCE OF THE OSTEOMUSCULAR SYMPTOMS IN WORKERS IN THE METALLURGIC INDUSTRY

ABSTRACT

The aim of this study was to verify the occurrence of pain in individuals in the metallurgical industry in the city of Ponta Grossa, PR. The data collection was carried out through the application of five instruments: the first composed of individual issues; the second refers to the Nordic Musculoskeletal Symptoms Questionnaire; the third McGill pain questionnaire; the fourth Roland Morris Disability Questionnaire; and the fifth on the Visual analog scale of pain. These instruments had the objective to identify and characterize the musculoskeletal symptoms related to pain, as well as the body regions most affected. The sample was composed of 74 male employees with an average age of 31 years. The results indicated that the region's most affected were the lumbar spine region with 69%, followed by thoracic spine region with 65%, ankle and foot with 58%, wrist, hands and fingers with 56%, shoulders with 48% , arm with 43%, forearm with 36%, knees with 35%, waist and thigh with 33%, neck with 30% and elbows with 16%. In the workers with musculoskeletal symptoms in lumbar spinal region, it was found that they had a low functional impairment related to their pain. In the multidimensional assessment of pain, it was observed that the category that received the highest percentage was the evaluative category, which is the one that allows the expression of the overall evaluation of the painful experience. As for the painful sensation intensity measured by the Visual analogue scale of pain, has a mean of 6.8 and a standard deviation of 1.8. The scenario researched, identifies the need to promote the guidelines, ergonomic analyses and preventive actions targeting the most appropriate way for the employee to develop their jobs, in order to eliminate or minimize the incidence of musculoskeletal disorders.

KEYWORDS: Musculoskeletal Symptom, Labor, Industry.

SURVENUE DE SYMPTOMES MUSCULO-SQUELETTIQUES CHEZ LES TRAVAILLEURS DE L'INDUSTRIE METALLURGIQUE

RÉSUMÉ

Le but de cette étude était de déterminer l'apparition de la douleur chez les individus d'une industrie métallurgique de la ville de Ponta Grossa, PR. La collecte des données a été réalisée grâce à l'application des cinq instruments: le premier composé points individuels, le second se rapporte au questionnaire nordique appareil locomoteur adapté, le Pain Questionnaire McGill troisième, le quatrième du Questionnaire d'invalidité Roland Morris, et la cinquième à la douleur échelle visuelle analogique. Ces instruments visent à identifier et caractériser les symptômes musculo-squelettiques liés à la douleur et les régions du corps les plus touchées. L'échantillon était composé de 74 employés de sexe masculin, avec un âge moyen de 31 ans. Les résultats ont montré que les régions les plus touchées ont été la colonne vertébrale lombaire avec 69%, suivie de la

colonne thoracique 65%, cheville et pied avec 58%, poignet, main et des doigts avec 56%, 48% avec l'épaule, le bras, avec 43 %, 36% l'avant-bras, les genoux à 35%, la taille et les cuisses avec 33%, 30% et le cou, les coudes à 16%. Chez les travailleurs ayant des symptômes musculo-squelettiques de la colonne lombaire, il a été constaté qu'ils avaient une déficience fonctionnelle liée à leur douleur au bas du dos. Dans l'évaluation multidimensionnelle de la douleur, il a été observé que la catégorie avec le plus haut pourcentage était de la catégorie d'évaluation, qui est celui qui peut exprimer l'évaluation globale de l'expérience de la douleur. Comme l'intensité de la sensation douloureuse mesurée par l'échelle visuelle analogique de la douleur, a donné une moyenne de 6.8 et un écart-type de 1.8. Considérant le scénario étudié, identifie la nécessité de promouvoir des lignes directrices, l'analyse ergonomique et d'actions de prévention visant à la manière la plus appropriée pour le travailleur de développer leurs activités dans le but d'éliminer ou de réduire au minimum l'incidence des troubles musculo-squelettiques.

MOTS-CLÉS: Symptômes musculo-squelettiques, Travailler, Industrie.

LA APARICIÓN DE SÍNTOMAS OSTEOMUSCULARES EN TRABAJADORES DE LA INDUSTRIA METALÚRGICA

RESUMEN

El objetivo de este estudio fue determinar la presencia de dolor en individuos de una industria metalúrgica de la ciudad de Ponta Grossa, PR. La recolección de datos se realizó a través de la aplicación de cinco instrumentos: el primero compuesto de preguntas individuales, el segundo se refiere al Cuestionario Nordic Musculoskeletal adaptado, la tercera McGill Pain Questionnaire, el cuarto del Cuestionario de Discapacidad Roland Morris, y el quinto para el dolor Escala analógica Visual. Estos instrumentos tenían por objeto identificar y caracterizar los síntomas musculoesqueléticos relacionados con el dolor y las regiones del cuerpo más afectadas. La muestra estuvo constituida por 74 trabajadores de sexo masculino, con una edad promedio de 31 años. Los resultados mostraron que las regiones más afectadas fueron la columna vertebral lumbar con 69%, seguido por 65% columna torácica, tobillo y pie con 58%, muñeca, las manos y los dedos con 56%, 48% con el hombro, brazo con 43 %, el antebrazo 36%, con las rodillas un 35%, la cintura y los muslos con un 33%, 30% y el cuello con los codos a 16%. En los trabajadores con síntomas musculoesqueléticos en la columna lumbar, se produjo un deterioro funcional bajo en relación con su dolor de espalda. En la evaluación multidimensional del dolor, se observó que la categoría con mayor porcentaje fue la categoría de evaluación, que es el que puede expresar la valoración global de la experiencia del dolor. Como la intensidad de la sensación de dolor medido por la escala analógica visual de dolor, produjo una media de 6.8 y una desviación estándar de 1.8. Considerando el escenario investigado, identifica la necesidad de promover pautas, análisis ergonómico y acciones preventivas encaminadas a la forma más adecuada para que el trabajador desarrolle sus actividades con el fin de eliminar o reducir al mínimo la incidencia de los trastornos musculoesqueléticos.

PALABRAS CLAVE: Síntomas osteomusculares, Trabajo, Industria.

OCORRÊNCIA DE SINTOMA OSTEOMUSCULAR EM TRABALHADORES DA INDÚSTRIA METALÚRGICA

RESUMO

O objetivo do presente estudo foi verificar a ocorrência de dor em indivíduos de uma indústria metalúrgica da cidade de Ponta Grossa, PR. A coleta dos dados foi realizada por meio da aplicação de cinco instrumentos: o primeiro composto por questões individuais; o segundo refere-se ao Questionário Nórdico de Sintomas Osteomusculares adaptado; o terceiro ao Questionário McGill de dor; o quarto ao Questionário de Incapacidade de Roland Morris; e o quinto à Escala Analógica Visual de dor. Estes instrumentos tiveram como objetivos identificar e caracterizar os sintomas osteomusculares relativos à dor, bem como as regiões corporais mais acometidas. A amostra foi composta por 74 funcionários do sexo masculino, com idade média de 31 anos. Os resultados indicaram que as regiões de maior acometimento foram a região da coluna lombar com 69%, seguida por coluna torácica 65%, tornozelo e pé com 58%, punho, mãos e dedos com 56%, ombros com 48%, braço com 43%, antebraço com 36%, joelhos com 35%, cintura e coxa com 33%, pescoço com 30% e cotovelos com 16%. Nos trabalhadores com sintomas osteomusculares no segmento lombar da coluna vertebral, verificou-se um comprometimento funcional baixo relacionado com sua dor lombar. Na avaliação multidimensional da dor, observou-se que a categoria que obteve maior percentual foi a categoria avaliativa, que é aquela que permite expressar a avaliação global da experiência dolorosa. Quanto à intensidade da sensação dolorosa mensurada por meio da Escala Visual Analógica de dor, obteve-se uma média de 6.8 e desvio padrão de 1.8. Considerando o cenário pesquisado, identifica-se a necessidade de promover orientações, análises ergonômicas e ações preventivas visando a maneira mais adequada para o trabalhador desenvolver suas atividades, com o objetivo de eliminar ou minimizar a incidência de distúrbios osteomusculares.

PALAVRAS-CHAVES: Sintoma Osteomuscular, Trabalho, Indústria.