

49 - EMERGENCY AID: UNDERSTANDING THE USE OF CRYOTHERAPY IN THE ACUTE INJURY AT THE SCHOOL ENVIRONMENT

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1 INTRODUCTION

In the everyday life of school little accidents happen, like sprains, hemorrhages and excoriations, the biggest part of them happen during physical activities practice in physical education classes, with the frequent use of ice application in the place (chryotherapy), without the teachers' and even the students' knowledge of its physiological function. The term "chryotherapy", means therapy through cold, so any therapeutic procedure with cold application will result in tissue temperature fall (KNIGHT, 2000). Because of this, all the people, especially the ones that belong to the school's everyday life, must be oriented, so that they can help with safety until the arrival of an enabled professional (FILÓCOMO et.al., 2002). In the same line of thought, Starley (2001) alerts us that in the usage of chryotherapy the temperature may fall to 14,4° in order to a decrease of the pain to occur (analgesia) and to 13,8° C, in order to the blood flow to be reduced, confirming the necessity of scientific knowledge for this procedure.

Emergency services include the services done right after the occurrence of an accident, always with the goal of preserving the human life. So, knowing about all procedures of emergency services is needed for everybody (OLIVEIRA et al., 2001). In school communities, especially among teachers, the only professional that has this subject about first aids in his/her curricular schedule is the Physical Education professional. But this professional is not always present at school or he is not even up to date to carry out a good service.

At school, the Physical Education subject has been the favorite one among students; it often makes the Physical Education teacher to forgo safety, providing the development of classes in propitious places to an accident, as wet and slippery floor. Running into Flegel (2002) account, that alerts us that in these situations the biggest responsible for the prevention is the Physical Education teacher, the one that has the obligation of checking not only the environment, but also the usage of dangerous equipment, especially in girls that in this phase abuse of rings, earrings and piercing. This fact is confirmed by Wharley and Wrong (1999) who alert that most of the accidents happen during the sports and recreational practice, since the physical contact provided by these activities, allied with students that are not in a good physical conditioning, provides a way open to an accident.

2. THE CHRYOTHERAPY INFLUENCE IN THE MUSCLE-SKELETAL INJURIES

When any kind of injury occurs, local physiological alterations happen with it, and depending on the extension of the injury, systemics. This happens as a way of maintaining the organism homeostasis.

The physiopathology of the tissue injuries is characterized by the presence of an acute phase, subacute and chronic, depending, among other factors, of the injury time of occurrence (KUMAR, ABBAS and FAUSTO, 2005).

Still according to Kumar, Abbas and Fausto (2005), the acute phase is constituted by a rupture of the collagen fibers of the blood vessels, leading to a hemorrhage and a humoral answer, liberating chemiotatics and vessel active factors. During the first 72 hours after the injury, vascular changes will predominate, and then cells' exudates and blood solutes will occur, forming the clots. With the arrival of the leukocytes in the injury place the neutralization of the irritating chemicals liberated occur and the phagocytosis starts, removing the dead tissues, as well as an intense fibroblastic activity, starting then the formation of new tissues and capillary berth.

The chryotherapy is the use of any way of substances application that can make the tissue temperature to fall with therapeutic purpose (DINIZ, 2001).

According to Knight (2000) the chryotherapy application in an acute injury promotes a pain reduction, thanks to the reduction of excitability of the free nerve terminations and endorphin liberation. A reduction in the enzymatic activities occurs, as well as one reduction in the muscle spasms, and also a reduction in the histamine and bradykinin production, decreasing the edema. It also promotes a vasoconstriction, impeding a plasmatic extravasation because of the occurrence of the acute traumatism reducing the hemorrhage. About the metabolic level a decreasing in the metabolism occurs, reducing the tissue damage caused by the secondary hipoxemy because of the lessening in the demand of oxygen and nutrition, this way it limits the injury extension.

The use of the chryotherapy is counter indicated to people that suffer from Raynaud sickness or vasospastic diseases, persons that are hypersensitive to cold, with cardiac disorder, important local circulatory alterations, it must not be applied on burns, and also the application must not exceed the period of 50 minutes in order to not cause ulcerations. The use of chryotherapy is also counter indicated to people in coma or paralyzed due to the reduction of the sensibility (RODRIGUES, 1998).

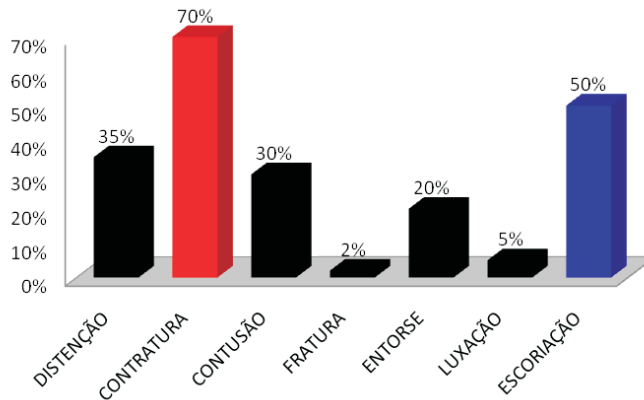
3.METHOD

The present research is classified as descriptive according to Mattos (2004), because it has as characteristics: to observe, analyze and describe the facts and phenomena without manipulating them. The data will be analyzed through a quantitative approach, descriptive through the survey of data that according to Zouain & Botelho (2006) is a method of social research that uses statistics techniques, implicating in the construction of inquiries through questionnaires. The study was developed in the city of Santa Terezinha de Itaipu, in Paraná, with students from the basic education of the public school Carlos Zewe Coimbra, which has 1031 students, aged between 10 to 17 years old and 50 teachers, 40 women and 10 men. The

diagnosis of the occurrence rate concerning to the muscle-skeletal injuries was done through data swab with the pedagogic sector in the period of March 2009 to June 2010 through the application of a questionnaire, detecting the main musculoskeletal accidents occurred in the school environment. The level of knowledge about injuries and physiological functions of the chryotherapy was done with the teachers through a questionnaire, because these people are involved with emergency services.

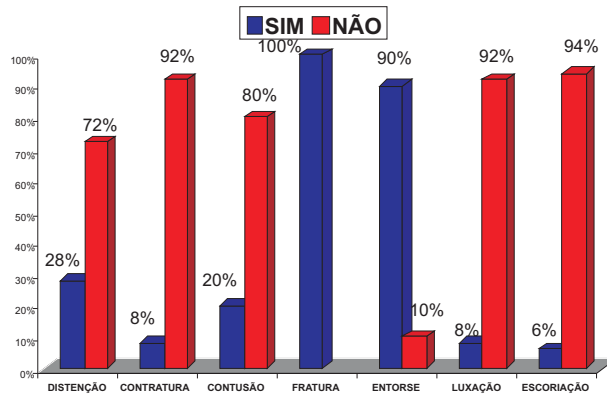
4.RESULTS AND DISCUSSION

Through the research with the pedagogic sector about the injuries occurred in the period of March 2009 to June 2010, it was observed that seven categories of injuries occurred, and as shows Graph 01, 70% of the injuries are contractures, 50% excoriations, 30% stretching and bruise, 20% sprain, 5% luxation and only 2% fracture, and this result does not run into the researches that aimed to raise the injuries' incidence in children and teenagers, as Carvalho Júnior et al (2000) where the main injury found was fracture followed of bruise and after sprain, but Malta et al. (2009) research shows cut/perforation as the most frequent injury followed of bruise and right after sprain/luxation. We must remember that the methodology used in the researches is different, what can explain the difference in the injuries distribution



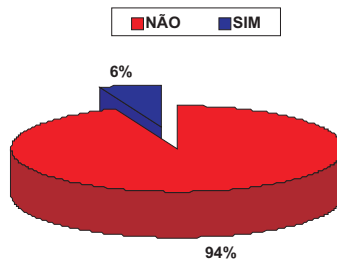
Graph 01 – Distribution of the injuries occurred in 15 months.

After the application of the questionnaire with the 50 teachers from the Public School Carlos Zewe Coimbra, when they were asked about their knowledge of the injuries occurred in the last 15 months. It can be observed in Graph 02 that the only injuries that are known by the majority of the teachers are fracture where 100% of the teachers know what this injury is and sprain where 90% of the teachers reported that they knew about this kind of injury. This is a problem that is also identified by ORELLANA GARCIA et al.,(1998). But Corrêa (2008) noticed that the deficiency or even the absence of subjects that dealt with themed related to diseases of the bones and joint systems in their curricular schedule in their graduation course in Physical Education, what lead them to a deprivation about the knowledge and development of diseases of this kind.



Graph 02 – Teachers' knowledge about the injuries

Graph 03 shows the lack of knowledge from the teachers about effects of the application of chryotherapy in traumatologic injuries. According to Hanan and Costa (2010) the theme about the procedures needed in a school emergency should be included in the curricular schedule of the teachers. The knowledge of techniques that can be useful to carry out the first aids after the injury are needed and also to a worsening in the disorder board. According to Daniela et al. (2009) and Pergola and Araujo (2008) a good initial management of the injury can avoid bigger damages to the tissue attempted.



Graph 03- Knowledge about the physiologic effects of the chryotherapy in the injury.

1. CONCLUSION

Injuries can occur in the school environment at any time and the teachers must be prepared to deal with it when any kind of accident happens. The results showed that the musculoskeletal injuries rate at school is high and of a great variability. Besides, it can be noticed that the teachers' knowledge regarding the injuries, and about the effects of a simple, effective procedure of a low economic cost as the chryotherapy, is very low.

It is important that the curricular schedule of the courses of teachers' formation contain subjects facing the first aids after injury, but it is also important that these subjects show effective solutions to the achievement of a good first attendance.

Enabling and improvement courses must be offered to all the teachers, especially to the Physical Education teachers where the chances of musculoskeletal injuries are bigger.

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ABSTRACT

O presente estudo caracteriza-se como descritivo e foi desenvolvido no município de Santa Terezinha de Itaipu PR, foram analisadas as características do Colégio Estadual Carlos Zewe Coimbra, 1031 alunos, com idade de 10 a 17 anos e 50 professores, sendo 40 mulheres e 10 homens compuseram a amostra deste estudo. Foram coletados dados sobre o diagnóstico do índice de ocorrências de lesões músculo esqueléticas junto ao setor pedagógico entre março de 2009 a junho de 2010 e por meio de um questionário foi analisado o nível de conhecimento dos professores sobre as lesões e função fisiológica da crioterapia. Os dados apresentaram que entre o período selecionado para análise ocorreram sete categorias de lesões, sendo as mais frequentes as contraturas com 70% das lesões e escoriação com 50%, seguidas por distensão e contusão, entorse, luxação e fratura representando respectivamente 30%, 20%, 5% e 2%, diferindo de alguns estudos apresentados na literatura. O questionário dirigido aos professores indicou que o conhecimento dos professores se restringe a fraturas 100% e entorses 90%. Quando questionados sobre o conhecimento dos efeitos da aplicação de crioterapia em lesões traumatológicas 6% responderam positivamente os demais desconheciam tal práticos. Os resultados demonstraram que o índice de lesões osteomusculares em escolares é alto e de uma grande variabilidade. Além disto, pode-se notar que o conhecimento dos professores, em relação as lesões, e sobre os efeitos da crioterapia, é muito baixo.

KEYWORDS: Crioterapia; Lesão Muscular; Socorros de Urgência

RÉSUMÉ

Cet étude est un descriptif, il a été développé dans la ville de Santa Terezinha de Itaipu dans l'État du Parana, au college « Carlos Zewe Coimbra ». Les 1031 élèves âgés entre 10 et 17 ans et les 50 enseignants - dont 40 femmes et 10 hommes - appartenant à ce college ont composé l'échantillon d'étude. Nous avons recueilli les données sur le diagnostic de l'indice de troubles musculo-squelettiques, auprès du secteur pédagogique de mars 2009 à juin 2010. Un questionnaire a été utilisé pour analyser le niveau de connaissances des enseignants sur les blessure musculaires et les effets physiologiques de la

cryothérapie. Les données collectées pendant la période citée, nous montre que sur le total des cas relevés : 70% sont des contractures, suivie par 50% des abrasions, 30% des distensions et contusions, 20% des entorses, 5% des luxations et 2% des fractures. Ces données diffèrent de certaines études. Le questionnaire a indiqué que les professeurs avaient tous une connaissance sur les fractures et environ 90% sur les entorses. En ce qui concerne la connaissance des effets physiologiques de l'emploi de la cryothérapie dans les cas de troubles musculo-squelettiques, 6% des enseignants ont répondu positivement et les autres ne connaissent pas cette pratique. Les résultats ont montré que le nombre de troubles musculo-squelettiques chez les étudiants est élevé et d'une grande variabilité. Les enseignants ont montré peu de connaissances sur les effets physiologiques de la cryothérapie et sur les TMS.

MOTS-CLÉS: cryothérapie; trouble musculaire; secours d'urgence

RESUMEN

Este estudio es descriptivo y celebrado en el municipio de Santa Terezinha de Itaipú – PR, en la Escuela Estadual Carlos Zewe Coimbra. En la muestra del estudio participaron 1031 estudiantes, con edades entre 10 y 17 años, 50 maestros, 40 mujeres y 10 hombres. Los datos fueron recogidos en el diagnóstico de índice de lesiones músculo esquelético, junto con el sector pedagógico entre marzo de 2009 y junio de 2010. Para analizar el nivel de conocimiento de los maestros sobre las lesiones músculo esquelético y sobre las características fisiológicas y sobre el efecto de la crioterapia se utilizó un cuestionario. Los datos recogidos en el período seleccionado sobre las lesiones nos mostró que el 70% de ellos son contracturas, seguido por rozaduras con 50%, distensión y contusión 30%, esguince 20%, articulaciones 5% y fractura con 2% de ocurrencias, datos que difieren de algunos estudios presentados en la literatura. El cuestionario dirigido a los maestros indicó que todos presentan conocimientos sobre fracturas y el 90% de ellos sobre esguinces. En relación con el conocimiento sobre los efectos fisiológicos de la aplicación de crioterapia músculo esquelético en lesiones, 6% de profesores respondieron positivamente y los otros no sabía de la práctica. Los resultados muestran que el número de lesiones músculo esquelético en estudiantes es alto y con una gran variabilidad. Los maestros tienen poco conocimiento sobre efectos fisiológicos de crioterapia en lesiones del músculo esquelético

PALABRAS CLAVES: crioterapia; daño muscular; ayuda de emergencia

RESUMO

O presente estudo caracteriza-se como descritivo e foi desenvolvido no município de Santa Terezinha de Itaipu PR, foram analisadas as características do Colégio Estadual Carlos Zewe Coimbra, 1031 alunos, com idade de 10 a 17 anos e 50 professores, sendo 40 mulheres e 10 homens compuseram a amostra deste estudo. Foram coletados dados sobre o diagnóstico do índice de ocorrências de lesões músculo esqueléticas junto ao setor pedagógico entre março de 2009 a junho de 2010 e por meio de um questionário foi analisado o nível de conhecimento dos professores sobre as lesões e função fisiológica da crioterapia. Os dados apresentaram que entre o período selecionado para análise ocorreram sete categorias de lesões, sendo as mais frequentes as contraturas com 70% das lesões e escoriação com 50%, seguidas por distensão e contusão, entorse, luxação e fratura representando respectivamente 30%, 20%, 5% e 2%, diferindo de alguns estudos apresentados na literatura. O questionário dirigido aos professores indicou que o conhecimento dos professores se restringe a fraturas 100% e entorses 90%. Quando questionados sobre o conhecimento dos efeitos da aplicação de crioterapia em lesões traumatológicas 6% responderam positivamente os demais desconheciam tal prática. Os resultados demonstraram que o índice de lesões osteomusculares em escolares é alto e de uma grande variabilidade. Além disto, pode-se notar que o conhecimento dos professores, em relação as lesões, e sobre os efeitos da crioterapia, é muito baixo.

PALAVRAS CHAVE: Crioterapia; Lesão Muscular; Socorros de Urgência