13- EPIDEMIOLOGIC STUDY: INCIDENCE AND COMPLICATIONS OF TRANSFEMORAL AMPUTATION OF TRAUMATIC CAUSE

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INTRODUCTION

According to Carvalho (2003), amputation is a word derived from Latin, meaning the complete or partial removal of one or more limbs of the body, and the amputations of limbs can happen due to etiologies related to vascular, neuropathic, traumatic, tumoral, infectious and congenital processes.

The incidence of amputation in the USA is estimated tobe 4.9 amputees per 1000 born alive babies, while the incidence for those over 65 years old is four times as high (FERNANDES, 2007). In Brazil, the incidence is estimated to be 13.9 per 100,000 inhabitants/year (SPICHLER et al.,2001).

The amputations are classified according to the place of their occurrence, for the lower limbs the main types are: partial amputation of feet, transtibial, disarticulation of knees, transfemoral, disarticulation of hips and hemipelvictomy (BOCCOLINI, 2000).

The transfemoral amputation refers to the whole amputation between the knee and hip articulation (CARVALHO, 2003). It can be divided in transfemoral amputation in proximal, medium and distal third (BOCCOLINI, 2000).

The most frequent causes of amputations are due to the peripherical arterial insufficiency, complications of mellitus diabetes, severe infections, traumas, neoplasias and congenital deformities (PASTRE, 2005, apud LUCAS, 2008).

For Fernandes (2007), the highest incidence of amputations occur for the vascular diseases (75% of the causes in lower limbs) followed by the traumas (20%) and tumors (5%). For upper limbs (MMSS), the highest cause factor is the labor accidents.

The amputations of lower limbs of traumatic cause are caused by traffic accidents (LEITAO, 1995).

The age of the amputees varies depending on the cause of the amputations. Thus, vascular diseases commit more middle aged people. As for malign tumors, they have a varied incidence, and traumatic accidents usually happen to younger and healthy people (LUNDBERG & GUGGENHEIM,1986).

The traumatic amputations commit mainly adolescents and young adults, who are more exposed to labor accidents and traffic accidents, due to the technology (CARVALHO, 2003). The amputation of the limb is recommended when it is impossible reconstruct the injured limb (GOTTSCHALK, 1999). There is a certain reality for the amputees, their body structure was irreversibly altered, and the feelings of anxiety, rage, frustration, and self pity are present during the first weeks or even months after the surgery (LUNDBERG & GUGGENHEIM, 1986).

For O'Sullivan (1993), the earlier the beginning of the rehabilitation, the more successful it will be, and the later the beginning, the higher the probability of secondary complication development such as articulation contractures, general debilitation and a depressive psychological state. According to Friedmann (1994) apud Brito (2005), the main causes of complications after the amputation in the stump are: edema, sutures, phantom pain, stump ulcers, swelling, infections, scaring retraction, neuromas and bone espicules. These kinds of problems usually affect the stump in the second or third week after the surgery. The problems originated from neuromas, muscle contractures and hypotrophy, among others, happen later; and the pain can hardly occur at any time, presenting several characteristics.

The aim of this study was to identify and quantify the incidence, as well as the main complications associated with the transfemoral amputation of traumatic cause.

METHODOLOGY

This research is a field study, with epidemiologic, evaluative, quantitative, and transversal cut. The study was composed by 31 patients from FAG's Integrated Clinics in Cascavel- Paraná, with transfemoral amputation, regardless the age and sex, the sample of study was composed by 9 patients who fulfilled the criteria adopted in the research, which were: be a patient of FAG's Rehabilitation Care Center, presenting transfemoral amputation of vascular cause, regardless the sex, having the person's permission to apply the questionnaire through the free agreement term document, willing to participate in the research. The data acquisition was taken through a questionnaire composed by 31 questions, 8 subjective ones and 23 objective ones. The questionnaire was elaborated and applied by four university students who were graduating in the Physiotherapy course in the institution, this procedure happened from Mondays to Thursdays in the morning, from April 07th to April 30th, these students interviewed the patients individually in order to clarify possible doubts of the interviewees. The interviews were accomplished after the signature of the free agreement term document. The data were collected and tabled in a statistical descriptive form, making use of the SPSS program, version 15.0, and then they were discussed.

RESULTS AND DISCUSSION

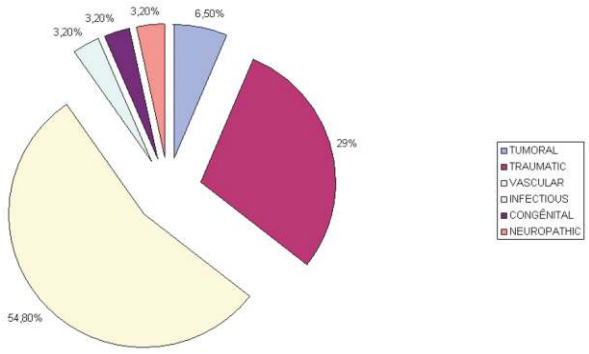
According to Carvalho (2003), in the amputations of lower limbs, we can find etiologies concerning vascular, neuropathic, traumatic, tumoral, infectious, congenital and iatrogenic processes.

According to the literature, the second highest cause of amputation is due to trauma, committing mainly young adults, and this amputation is recommended when it is impossible to reconstruct the injured limb (GOTTSCHALK, 1999).

According to Cassefo (2003), the observed distribution of the etiology of amputation was: 59.2% vascular; 24% traumatic; 5,3% tumoral; 5% infectious; 3.1% congenital; 1.1% others and 2.3% not mentioned.

It can be confirmed in this study that 54.8% of the interviewees presented amputation of vascular cause, 29% traumatic, 6.5% tumoral, 3.2% infectious, 3.2% neuropathic and 3.2% congenital ones.

GRAPHIC 1: THE INCIDENCE OF ETIOLOGY WITH THE AMPUTATION.

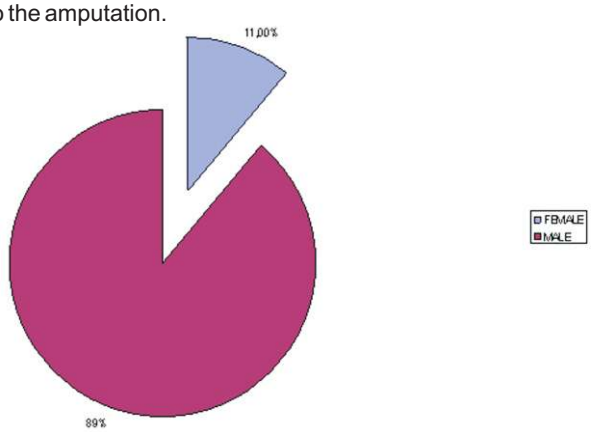


We observed that among the 9 participants of traumatic cause, 88.8% of them were men and 11.1% were women. (GRAPHIC 2).

Nissen (1992) mentions the prevalence of men in his/her studies, varying from 71% to 88%, in agreement with our studies.

The same result was observed in the study accomplished by Diogo (2003), where 75% of the patients were men and only 25% of them were women.

GRAPHIC 2 sex related to the amputation.



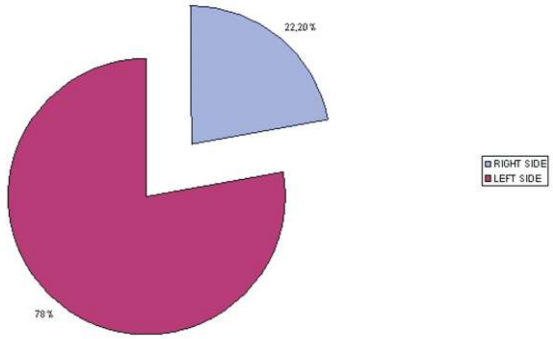
According to Kafrouni & Neto (1987), a very common indication for the amputation is the trauma, where in adults aging under 50 years old its incidence is higher.

The amputations of lower limbs caused by trauma happen mainly to adolescents and young adults, who are more exposed to labor accidents and means of transportation, due to the technology (CARVALHO, 2003). The average age found is this research can be seen below, 29% of the transfemoral amputees of traumatic cause are between 15 and 70 years old, with an average age of 46.7 years old, what matches the results pointed in other research.

As for the side of the amputation in the interviewees of traumatic cause, it was found 22.2% of right side, and 77.8% to the left side. (GRAPHIC 3).

In the study of Spichler (2004), it was 48.5% to the left and 51.5% to the right. Around 85% of all amputations are made in the lower limbs, however the number of amputations is equal for both sides (PALMER E TOMS, 1988).

GRAPHIC 3 : The side of the amputation.



The amputees of traumatic cause who present alterations and complications in the stump are 66.7%, which can be seen in graphic 4. The main complication identified in the research is the phantom pain, which can arouse either in an isolated way or associated with another complication. Although this phenomenon is studied a lot, it is yet little known, in which the patient experiences an unpleasant sensation in the limb or in part that was removed. The incidence found in several studies varies from

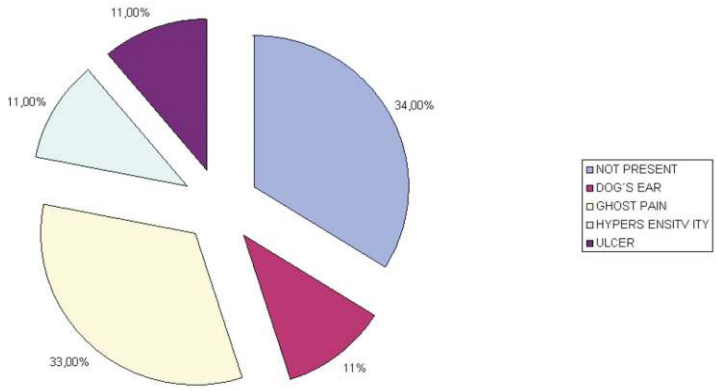
2% up to 97%, and the pain usually arouses in the first week after the amputation and remains for months and sometimes years. It is normally located distally in the phantom limb (toes, feet and calf) and it is referred as a tight sensation (SAKAMOTO, 1995).

In this study, the isolated phantom pain was responsible for 33.4% of alterations, and it also aroused together with hypersensitivity (11.1%), with ulcer presence (11.1%), with dog's ear (11.1%), adding up to 66.6% of the sample with stump alteration and 33.4% of the sample didn't present any kind of unpleasant feeling.

The relationship between pain and injury seems to be so evident that, even in the real absence of the injury, it is not believed in the possibility of pain, or in the absence of the limb, it is believed in the arousing of pain. The term “pain” is commonly used in two different criteria which are up to a certain point divergent. The first refers to a system of nerve terminations in the outskirts of the body, which are activated by adequate stimuli; send out signal to the dorsal medulla or to a specific area in the brain. The second uses the cognitive and emotional system and behavioral actions, occurring subsequently and nociceptive stimulation generally regarded as emotions, responses or actions (TICIANELI e BARAÚNA, 2002).

The phantom pain is produced by the absence of nerve impulses of the limb. When the nerve is cut, it produces a strong injury discharge in all types of fibers. This excitement reduces quickly and the cut nerve becomes silent, until new nerve terminals start to grow. It shows that the central nervous system realizes the absence of normal inflowing, thus, some amputees feel such a little pain or hardly ever feel it, that do not mention the painful feeling when questioned about the pain, while other suffer pain with a higher frequency. (DEBASTIANE, 2005).

GRAPHIC 4: Alterations found in the stump of amputees of traumatic cause



CONCLUSION

After analyzing and discussing the data, it can be observed and concluded in this study, that the incidence of transfemoral amputation of traumatic cause is the second most frequent, responsible for 29% of amputations, and men were predominant in the research in 88.8%. As for the age, the average age of 46.7 years old was the same one observed in the literature. The complication in the stump with higher incidence was the phantom pain in 33.63%, and the predominant side of the amputation was the left side in 77.8% of patients.

It can also be concluded with this research, that there are few studies in this area and the amputation is an increasing area, as discussed previously, and because of this fact, it is important to have more studies, mainly in relation to the prevention.

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EPIDEMIOLOGIC STUDY: INCIDENCE AND COMPLICATIONS OF TRANSFEMORAL AMPUTATION OF TRAUMATIC CAUSE

ABSTRACT

Amputation is a word derived from Latin, which means the complete or partial removal of a body limb from different sources such as vascular, neuropathic, traumatic, tumoral, infectious and congenital. In Brazil, the incidence of amputations is estimated to be 13.9 per 100,000 inhabitants/year and in the USA the number is 4.9 per 1000 born alive babies, while this number is four times as high when we talk about people over 65 years old. As shown in books, the second cause of amputation is the traumatic problems and car accidents and labor accidents among others are strictly associated with them. This article aimed to identify the incidence, as well as the main complications associated with the transfemoral amputation of traumatic cause. An epidemiologic study was accomplished, in the FAG'S Clinic, interviewing 31 patients. A questionnaire composed by 31 questions, 8 subjective ones and 23 objective ones was applied during one month. Nine of these questionnaires were selected because they fulfilled the requirements to be included in the research. In the research, the results showed that 29 % of the interviewees were of traumatic cause, and most of them were men (88,8%), aging around 46 years old, and the prevalent alteration in the stump was the phantom pain (33,3%). As it was previously supposed, our average numbers are in agreement with what is seen in the literature.

KEY WORDS: Amputation. Transfemoral. Traumatic Cause.

ÉTUDE ÉPIDÉMIOLOGIQUE : INCIDENCE ET COMPLICATIONS DE L'AMPUTATION TRANSFÉMORAL DE CAUSE TRAUMATIQUE

RÉSUMÉ

L'amputation est un mot dérivé du latin, qui signifie une coupe partielle ou totalle d'un membre du corps, en pouvant être par cause vasculaire, neuropathique, traumatique, tumorale, infectieuse et congénitale. Au Brésil, on estime que l'incidence de l'amputation est de 13,9 pour 100.000 habitants par an, et aux Etats-Unis est estimée à 4,9 amputés pour 1000 nés vivants, en étant quatre fois plus grande quand il s'agit des personnes de plus de 65 ans. Selon la littérature, la deuxième cause d'amputation sont les problèmes traumatiques et à eux sont directement liés les accidents de voiture, de travail, entre autres. Cet article a eu l'objectif d'identifier l'incidence et les principales complications liées à l'amputation transfémoral de cause traumatique. Nous avons effectué une étude épidémiologique dans les cliniques intégrées de la FAG (Faculté Assis Gurgacz), interrogeant 31 patients. Il y a eu une application du questionnaire composé par 31 questions, en étant 8 ouvertes et 23 fermées, pendant environ un mois. Et de ceux-ci, 9 ont envisagé les critères d'inclusion. Dans la recherche, les résultats obtenus, comme prévu, 29% interviewés étaient de cause traumatique, en étant la majorité (88.8%) du sexe masculin, avec la moyenne d'âge de 46 ans, et la modification du cote qui a prévalu a été à la douleur fantôme (33.3%). Comme prévu, nos moyennes sont restées conformément auxquelles vues dans la littérature

MOTS-CLÉS: Amputation. Cause traumatique. Transfémoral.

ESTUDIO EPIDEMIOLÓGICO: INCIDENCIA Y COMPLICACIONES DE LA AMPUTACIÓN TRANSFEMORAL DE CAUSA TRAUMÁTICA

RESUMEN

Amputación es una palabra derivada del latín, que significa la retirada total o parcial de un miembro del cuerpo, pudiendo ser por causa vascular, neuropática, traumática, tumoral, infecciosa y congénita. En Brasil, se estima que la incidencia de amputaciones sea de 13,9 por 100.000 habitantes/año y en los EEUU es estimada en 4,9 amputados por 1000 nacidos vivos, siendo cuatro veces mayor cuando se trata de personas con más de 65 años. Como muestra la literatura, la segunda causa de amputación son los problemas traumáticos y a ellos están relacionados directamente a accidentes automovilísticos, de trabajo, entre otros. Este artículo tuvo por objetivo identificar la incidencia, así como, las principales complicaciones asociadas a la amputación transfemoral de causa traumática. Fue realizado un estudio epidemiológico, en las clínicas integradas FAG, entrevistando 31 pacientes. Se procedió a la aplicación del cuestionario compuesto por 31 cuestiones, siendo 8 abiertas y 23 cerradas, aproximadamente durante un mes. Y de estos, 9 es que contemplaron los criterios de inclusión. En la encuesta, los resultados obtenidos, como esperado, 29% de los entrevistados eran de causa traumática, siendo la mayoría (88,8%) del sexo

masculino, con el promedio de edad entre 46 años, y la alteración en el coto que prevaleció fue al dolor fantasma (33,3%). Como previsto, nuestros promedios quedaron de acuerdo con lo que es visto en la literatura.

PALABRAS CLAVE: Amputación. Transfemoral. Causa Traumática.

ESTUDO EPIDEMIOLOGICO: INCIDENCIA E COMPLICAÇÕES DA AMPUTAÇÃO TRANSFEMORAL DE CAUSA TRAUMÁTICA

RESUMO

Amputação é uma palavra derivada do latim, que significa a retirada total ou parcial de um membro do corpo, podendo ser por causa vascular, neuropática, traumática, tumoral, infecciosa e congênita. No Brasil, estima-se que a incidência de amputações seja de 13,9 por 100.000 habitantes/ano e nos EUA é estimada em 4,9 amputados por 1000 nascidos vivos, sendo quatro vezes maior quando trata-se de pessoas com mais de 65 anos. Como mostra a literatura, a segunda causa de amputação são os problemas traumáticos e a eles estão ligados diretamente a acidentes automobilísticos, de trabalho, entre outros. Este artigo teve por objetivo identificar a incidência, bem como, as principais complicações associadas à amputação transfemoral de causa traumática. Foi realizado um estudo epidemiológico, nas clínicas integradas FAG, entrevistando 31 pacientes. Procedeu-se a aplicação do questionário composto por 31 questões, sendo 8 abertas e 23 fechadas, aproximadamente durante um mês. E destes, 9 é que contemplaram os critérios de inclusão. Na pesquisa, os resultados obtidos, como esperado, 29% dos entrevistados eram de causa traumática, sendo a maioria (88,8%) do sexo masculino, com a média de idade entre 46 anos, e a alteração no coto que prevaleceu foi à dor fantasma (33,3%). Como era previsto, nossas médias ficaram de acordo com o que é visto na literatura.

PALAVRAS CHAVE: Amputação. Transfemoral. Causa Traumática.

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