

Use of papain in wounds by nurses from the surgical area of a University Hospital

Uso da papaína em feridas por enfermeiros da área cirúrgica de um Hospital Universitário

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RESUMO

O cuidado com feridas constitui atividade importante no cotidiano dos enfermeiros e requer conhecimentos atualizados para intervenção segura. Dentre as terapias tópicas no tratamento de feridas, destaca-se papaína com fácil aplicabilidade e eficácia. Objetivou-se identificar o perfil sociodemográfico dos enfermeiros da área cirúrgica e descrever a indicação da papaína por esses profissionais. Estudo exploratório-descritivo, abordagem quantitativa, realizado com 33 enfermeiros cirúrgicos de um hospital universitário do Rio de Janeiro, abril a junho de 2017, com aplicação de questionário abordando perfil dos enfermeiros e indicação e uso da papaína. A seguir, foram elaborados 2 instrumentos: um alicerçado no levantamento bibliográfico sobre utilização da papaína e um Barema para avaliar respostas obtidas. Os dados foram coletados, agrupados por semelhança, analisados, e posteriormente inseridos no instrumento de avaliação. Foram encontrados 63,6% dos enfermeiros como residentes e plantonistas, e 28 (84,8%), confirmaram usar a papaína em feridas. Destes, 67,8% indicaram a papaína considerando a ação farmacológica. Não houve consenso para emprego nas fases de cicatrização e 82,1% afirmaram usar equipamento de proteção individual durante o procedimento. Concluiu-se que apesar do uso da papaína pelos enfermeiros, não há consenso na utilização e indicação, o que reforça necessidade de estratégias educativas de atualização para os mesmos.

Descritores: Papaína; Cicatrização; Enfermagem cirúrgica.

ABSTRACT

The use of papain in wounds by surgical nurses of an University Hospital. Wound care is an important activity in the daily routine of nurses and requires up-to-date knowledge for safe intervention. Among the topical therapies in the treatment of wounds, the papain stands out for its easy applicability and effectiveness. The objective was to identify the sociodemographic profile of nurses in the surgical area and to describe the indication of papain by these professionals. An exploratory-descriptive study, a methodological approach, performed with 33 surgical nurses from a university hospital in Rio de Janeiro, from April to June 2017, with the application of a questionnaire addressing nurses' profile and indication of the use of papain. Next, two instruments were elaborated: one based on the bibliographical survey on the use of papain and a Barema to evaluate the answers obtained. The data were collected, grouped by similarity, analyzed, and later, inserted in the evaluation instrument. A total of 63.6% of nurses were found as residents and attendees, and 28 (84.8%) confirmed using papain in wounds. Of these, 67.8% indicated papain considering the pharmacological action. There was no consensus for use in the healing phases and 82.1% stated that they used personal protective equipment during the procedure. It was concluded that despite the use of papain by nurses, there is no consensus on the use and indication which increases the need for educational strategies to update them.

Keywords: Papain; Healing; Surgical nursing.

NOTA

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INTRODUÇÃO

Wound care is one of the important activities in the daily routine of nurses and should, in the context of their professional competences, evaluate and prescribe the most appropriate care and treatment. In carefully evaluating the wound, nurses should have a holistic observation and consider all the individual factors that can directly interfere in the healing process, being aware of the pathophysiology and factors that accelerate or delay healing⁽¹⁻³⁾. Advances in technology in the health field, new topical therapies have been incorporated to assist in the prevention and treatment of wounds. Among these, papain, which began to be used by professionals worldwide since the 1950s and in Brazil, since 1983 with its recognized practice^(4,5).

Papain comes from the latex of papaya fruit, commonly found in Brazil, and is a complex mixture of proteolytic enzymes and peroxidases that helps to remove devitalized tissue. It acts as an enzymatic, bactericidal, bacteriostatic, antidepressant -inflammatory, stimulates tensile strength, and provides alignment of collagen fibers for more uniform healing. It can be used in lesions with different etiologies and stages of the healing process with excellent results, in several different age groups⁽⁴⁻⁷⁾.

The form of papain presentation has been perfected over the years, being in natura form (green papaya pulp), powder, gel, cream, cream associated with urea and / or chlorophyll and spray. Although the use of papain has been recommended at the national level for more than three decades in public and private institutions, studies indicate that there is still no consensus among nurses as to the indications of its use, presentation and duration of the solution after dilution⁽⁸⁻¹¹⁾.

One of the challenges for the use of the enzyme is the maintenance of its stability, as well as its application and proper concentration. In the form of powder, papain should be prepared immediately before dressing and used, because it is an easily deteriorated enzyme, that should be kept in a cool, dry, protected and ventilated place. In combination with other substances, papain requires the attention of the professional who is handling it, since it is inactivated when reacting with oxidizing agents such as iron, oxygen, iodine derivatives, hydrogen peroxide and silver nitrate, light and heat^(6,10,12).

An important fact related to the manipulation of papain is that because it is an enzyme with a high proteolytic power, it must be handled with personal protective equipment (PPE), as it can cause damages due to the inhalation of its particles. In Brazil there are no epidemiological data or official records in the regulatory bodies on allergic reactions related to the use of formulations containing papain⁽¹⁰⁻¹²⁾.

Lina Monetta was the first Brazilian nurse to publish

studies related to the effectiveness of papain, initially using fresh green papaya pulp directly on the wound, without previous processing of the enzyme^(13,14).

The study institution, a university hospital located in the city of Rio de Janeiro, has a Dressings Committee composed of stoma therapists, which indicate papain as topical treatment in wounds in patients of different age groups and with several types of lesions after evaluation. It should be noted that the product is handled and dispensed by the Pharmacy Service of the hospital, added to magnesium silicate powder, vehicle incorporation and stabilizing agent, in the concentrations: 2%, 4%, 6%, 10%, 15% and 30%⁽¹⁵⁾.

Considering the need of nurses' knowledge regarding the use and application of papain, the following research question was elaborated: how is the use of papain in wounds by nurses in the surgical area of a university hospital? In order to broaden nurses' knowledge about the enzyme, consensus or not for its indication, besides contributing to greater safety in its use by these professionals, it was proposed as objectives: to identify the sociodemographic profile of the nurses in the surgical area and to describe the indication of papain by these professionals.

METHOD

This is an exploratory-descriptive study, with a quantitative approach. The study scenario included surgical hospitalization units of a university hospital located in the city of Rio de Janeiro. The research investigated nurses in 8 surgical hospitalization units: surgical nursing supervisors, teachers and residents of the 1st and 2nd year of the specialization course of the surgical nursing program. The inclusion criterion used was Nursing Resident of the Surgical Clinic Programs; and that of exclusion was of nursing residents who were on vacation or leave during the collection period.

The ethical requirements proposed by Resolution 466/12 were respected, observing the free acceptance of the subjects to participate in the research, as well as signing the Term of Free and Informed Consent, under opinion no. 2,013,490, CAAE 66762717.0.0000.5259.

Data collection was performed from April to June 2017, using a questionnaire with semi-open questions, composed of 7 questions, which characterized the participant nurses (1st part), as well as their knowledge about the use of papain or not (2nd part). The data were collected, grouped by similar answers and analyzed, and later inserted in the evaluation instrument. Two instruments were then developed: the first with the 5 indications for use of papain in wounds; based on a bibliographical survey, as shown in table 1. The second instrument was a Barema in order to evaluate the answers obtained in the

questionnaire and to subsidize the interpretation of the previous instrument.

The data collected were analyzed and punctuated in the respective Barema, based on the instrument with the 5 indications and proposed uses. We understand that item I "PHARMACOLOGICAL ACTION OF ENZYME" is of greater importance regarding the use of papain. It was taken into consideration that nurses should have relevant knowledge about pharmacological aspects and properties of the enzyme. In this sense, the pharmacological action was classified as an item that should be mentioned in all the answers and, in this way, BAREMA was based on the following attributions of punctuation: excellent, very good, good, reasonable, incomplete, unacceptable.

RESULTS

Of the expected population of 43 nurses in the surgical setting of this institution, there were 10 exclusions, related to vacations, medical leaves and non-response to the questionnaire, totaling 33, characterized as follows: 05 section heads, 10 day attendants/on call nurses, 5 supervisors, 1 leader, 01 professor and 11 residents.

As shown in Table 2, the nurses participating in the study are mostly female, 28 (84.8%), with ages varying between 23 and 64 years old.

In the same table 1, a comparison can be made between the age group and the position held in the institution, where nurses who were between 23 and 33 years old are evidenced: 14 (42.4%), occupy positions of residents: 11 (33,3%) and on-callers: 10 (30.3%). In the study

TABLE 1 – Indications and uses of papain in the treatment of wounds based on bibliographic survey. Rio de Janeiro, 2017

Indications and uses of papain in skin lesions
1. Pharmacological action of the enzyme
2. Lower Financial Cost
3. Handling/Preparation Technique/Use of PPE's/Conservation
4. Association of papain with another product
5. Standardization by the institution

Source: Authors' data

TABLE 2 – Characterization of the nurses (n = 33) who work in the surgical units of a University Hospital. Rio de Janeiro, 2017

VARIABLES	N	%
Gender:		
Female	28	84,8%
Male	05	15,2%
Age group:		
23 to 33 years old	14	42,4%
34 to 43 years old	11	33,3%
44 to 48 years old	----	----
49 to 64 years old	08	24,3%
Professional working time:		
Up to 1 year	05	15,1%
1 to 5 years	06	18,2%
6 to 10 years	06	18,2%
11 to 15 years	06	18,2%
16 to 20 years	02	6,1%
> than 20 years	08	24,2%
Position held in the institution:		
Head of Section	05	15,1%
On call	10	30,3%
Supervisor	05	15,1%
Leader	01	3,1%
Resident	11	33,3%
Professor	01	3,1%
Higher titration:		
Specialization (Ongoing and / or completed)	27	81,8%
Mater's	5	15,1%
PhD	1	3,1%
Other employment:		
Yes	14	42,4%
No	19	57,6%
Time of professional exercise in the institution:		
Less than 1 year	05	15,2%
1 to 5 years	08	24,2%
6 to 10 years	05	15,2%
11 to 15 years	06	18,1%
16 to 20 years	02	6,1%
> than 20 years	07	21,2%

there was a predominance of newly trained nurses until 10 years of profession. On the other hand, nurses aged 34-64 years old: 19 (57.6%), have more than 10 years of professional practice. These hold positions of supervisors, teachers and heads of section. A large number of nurses with Specialization (in progress and / or completed) were obtained: 27 (81.8%), and with regard to the professional practice time at the institution, there were a variety of results, with 08 nurses (24.2%) from 1 to 5 years and another 7 (21.2%) with more than 20 years of institutional practice. Also, 14 nurses (42.4%) answered that they have another employment. It was identified that 31 nurses (93.9%) never published any scientific paper about papain.

Regarding the results obtained in the second part of the questionnaire, participants were questioned whether or not they used papain, 5 (15.2%) responded negatively.

Continuing, 28 (84.8%) of the participants reported using papain in the treatment of wounds, proving that the product is used among these professionals in the practice of the surgical area. Thus, the 28 respondents who used the product were included as the current sample (100%) of that survey.

Of the 28 participants who answered the reason for the indication for using papain, there was not ANY excellent score (0%). However, 19 nurses, 67.8% obtained a REASONABLE evaluation, that is, the participants answered at least the pharmacological action of the enzyme. In this aspect, the indication of the use of papain was evaluated and if it was correct for the types of wounds.

It is also relevant to point out that there was an IN-

COMPLETE response (3.6%), in which the participant answered any other items, except for the pharmacological action. Regarding the association with some other product, 28 (84.84%) indicated positively, and 8 (28.6%) of them reported that they associate papain with Hydrogel.

Regarding some of the papain preparation and manipulation care, the use of Personal Protective Equipment (PPE) was confirmed in 82.1% of the participants (23). Regarding the use of papain in the wound phases, the results point to the following data, shown in table 5:

It is noteworthy that 46.4% of the nurses indicate the use of papain in all phases and 35.7% only in wounds that present necrosis and / or shedding. The use in the other phases remained in similar proportions.

Concerning the concentrations of the enzyme available in this hospital, 21.4% of the nurses mentioned papain concentrations, including their power of action. It is important to note that there was only one report mentioning all the existing concentrations in the institution.

DISCUSSION

An expressive percentage of female workers (84.8%) was evidenced, which corroborates the feminization of the profession historically shown by the relationship between medical practices through treatment and those of nursing, through care, translation, for example, by the connections that exist between nature and legitimacy, between gender, class and power in the face of conflicts in the workplace ^(16,17).

The fact that the research scenario is a university hospital justifies the formative and qualifying cha-

TABLE 3 – Barema of the results obtained regarding the indications for use of papain by the nurses of the surgical area. Rio de Janeiro, 2017

EVALUATED CRITERIA	N	%
EXCELLENT: Answer all 5 items, mainly pharmacological action of the enzyme.	—	0%
VERY GOOD: Answer on pharmacological action and at least 2 other items.	1	3,6%
GOOD: Answer the pharmacological action, and at least 1 more item.	7	25%
REASONABLE: Respond to at least the pharmacological action of the enzyme.	19	67,8%
INCOMPLETE: Respond to any other items except pharmacological action.	1	3,6%
UNACCEPTABLE: Those who did not respond, did not give their opinion and did not use the product.	—	0%
TOTAL		100%

TABLE 4 – Association of papain with other products. Rio de Janeiro, 2017

Associates papain with some product:			Hydrogel	AGE (Essential Fatty Acids)	Physiological Serum at 0.9%	Urea cream	Zinc oxide	Total	
Yes	28	84,8	8 (28,6%)	3 (10,7%)	3 (10,7%)	1 (3,6%)	1(3,6%)	57,2	
No	5	15,1	—	—	—	—	—	21,4	

TABLE 5 – Use of papain in wound phases. Rio de Janeiro, 2017

Fases das lesões de pele em que se utilizam a papaína												Total	
All stages		Coagulation and liquefaction necroses / Spray		Granulation Fabric		Epithelialization		Depends on concentration		Did not know how to say		28	100%
13	46,4%	10	35,7%	1	3,6%	1	3,6%	1	3,6%	2	7,1%		

racter, in which a significant portion are professionals in training or specialization, as residents of several specialties, are qualified through learning and training in theory and practical skills in to deepen scientific knowledge. Residents enter the institution through an annual public tender, in the case of nursing, they stay for two years in various fields of practice according to the specialization.

As a result, there is feedback every year from the institution's staff, leading to an increase in the number of existing professionals ⁽¹⁸⁾.

The time of professional exercise, the time of exercise in the institution and other employment links, presuppose that these nurses have already had contact with the object of study: use of papain in wounds. On the other hand, the fact that resident nurses are newly graduated, with an interim employment relationship, may justify them having not yet had this appropriation with the thematic approach, which may point to the gap in the disclosure of care-based work, where only one nurse reports that she has published an article on the subject (1,3,13).

It should be noted that most nurses in the surgical area (84.8%) use papain in wounds, although its use still raises questions. The application of papain is referred to in studies as a great ally in the healing process. Regarding indications for the use of papain, 67.8% obtained a REASONABLE result, showing that they indicate the enzyme only for its pharmacological action, not considering other aspects involved in the indications which are indispensable and must be taken into account with respect to the safe use of the patient (5,7,10).

And 28 nurses (84.8%) use papain associated with some other product. In this study, the hydrogel was evidenced, which brings benefits to the injury considering the maintenance of the wet environment, with the use of 2 debriding agents: chemical and autolytic. This association is justified by the presence of two types of debridement, the enzymatic and autolytic, maintaining the lesion with the moist medium, propitiating and intensifying healing ^(10-12,14). The association of papain with other products is still incipient in the Brazilian context regarding the treatment of wounds, which suggests us to deepen the subject.

The result of a small number of nurses at this hospital did not use papain in wound dressings, is directly proportional to the small number of nurses in the institution for less than 1 year, so they were excluded from the study. It should be noted here that the aforementioned hospital has Standard Operational Procedures (POPs), which dictate nursing actions and serve as a basis for professional practice. Papain concentrations (2%, 4%, 6%, 10%, 15% and 30%) suggested and used in the institution are included in the POPs in order to guide the performance of the procedure and indication of the correct therapy ⁽¹⁵⁾.

In order to analyze the indication of papain in wounds by the nurses of the surgical area, a Barema was elaborated as an instructive subsidizing to evaluate the aspects used by the participants when they indicate the use of the product / coverage, thus it was evidenced REASONABLE, that is, the nurses at least the pharmacological action of the enzyme.

Considering that the pharmacological action is the primary item for nurses to prescribe papain, the professional should be able to list other indications for the safe use of the enzyme ^(9,10,13,19).

In relation to some of the care in the preparation and manipulation of papain, 82.1% of nurses use PPE, evidencing that they have knowledge about safe handling, because papain, when inhaled, can lead to respiratory problems due to its high proteolytic power. It should be noted here that papain requires special care in its maintenance and handling, since it is an unstable enzyme and requires ambient temperature so that it does not lose its effectiveness, besides being inactivated in contact with oxidizing agents like iron, oxygen derived from iodine, silver nitrate, light and heat ^(6-8,10,19,20).

Although they indicated papain only for its pharmacological action, 46.4% of the nurses described that they use it at all stages of the lesion, indicating that the use is being made in a judicious way. Concerning the enzyme concentrations available in the institution, 21.4% of the nurses mentioned the concentrations of papain, including reporting on their power of action. Papain is indicated for use in various concentrations during all phases of the wound healing process and should be directed according to the evaluation of the characteristics of each phase of the lesion (7,9,10,21).

The Federal Nursing Council, in resolution 501 of December 9, 2015, regulates the competence of nurses to perform dressings, coordinate and supervise the nursing team in the prevention and care of wounds, as well as other duties. In this sense, instrumentalizing the professional nurse is of great importance regarding safety and the assistance provided by these professionals ⁽²²⁾.

CONCLUSION

The study is based on the assumption that nurses and health professionals should reflect on the use of papain in wounds as an option to indicate coverage in the different types and stages of epithelization. Regarding the use of papain in the surgical area, it is noticed that there is still no consensus in its use by these nurses. Therefore, it is necessary that the professional is constantly updated and reflects on their practice, promoting interventions that offer the patient safety and quality. It is recommended to create a technology that allows the reflection on the use of papain in order to improve and rationalize the use of the enzyme, so that it can be added to the protocols in the form of standard Nursing Operating Procedures (POPs) from the evidence, experience and practice of the professionals of this institution.

The implementation and development of this study will contribute to deepen the discussion about the use of papain in wounds by surgical nurses. It is also believed that it can contribute to the production of knowledge to be used in the care practice of professionals who care for patients with wounds, especially in nursing. Also, to alert the nursing team to the need for better care in the health services, considering papain as a topical therapy with excellent resolution as a treatment choice, capable of interfering with the quality of the care provided.

As a limitation, we had the very setting of the study, where the surgical wards of the hospital went through a junction due to the instituted crisis, in which the specialties had to occupy the same physical space, sometimes making it impossible to collect data.

It is recommended to publicize the study and provide updating for all nurses in the institution, through educational technologies such as: practical classes, videos, debates on the subject and above all, sediment that everyone knows and appropriates POPs about dressings. In this way, the work will contribute to the production of knowledge to the scientific community, especially to health professionals

REFERENCES

1. Ferreira AM, Bogamif DDD, Tormena PC. The nurse and the treatment of wounds: in search of the autonomy of the care. *Arq Ciênc Saúde*. 2008; 15(3):105-9.
2. Giannini T, Blanck M. *Ulcers and Wounds - The Wounds Have Souls - An Interdisciplinary Approach to the Plan of Care and Aesthetic Reconstruction*. Di Livros Editora, Rio de Janeiro, 2014. 864p
3. Antoni P. Teaching-service integration: qualification of the nursing team in the treatment of wounds. In: *Anais do V Congresso Brasileiro de Prevenção e Tratamento de Feridas*. Revista Enfermagem Atual In Derme 2015, Ano 15 - Nº 75 - Outubro / Novembro / Dezembro - 2015 p.21
4. Silva CCR, Rogenski NMB. Use of papain: knowledge of nurses in a hospital in the city of São Paulo. *Rev Estima* 2010; 8(1):12-17.
5. Leite AP, Oliveira BGRB, Soares MF, Barrocas DLR. Use and effectiveness of papain in the wound healing process: a systematic review. *Rev Gaúcha Enferm* [Internet]. 2012 [citado 2014 dez. 02];33(3):198-207. Disponível em: <http://www.scielo.br/pdf/rgenf/v33n3/26.pdf>
6. Silva LM. Beneficial effects of papain in the therapeutic process of skin lesions. In: Jorge AS, Dantas SRPE. *Abordagem multiprofissional do tratamento de feridas*. São Paulo: Atheneu; 2003. p. 123-32.
7. Ferreira AM. The use of papain in the treatment of wounds. In: Malagutti W(Org). *Curativos, estomias e dermatologia: uma abordagem multiprofissional*. 3 ed. São Paulo: Martinari, 2014.p. 135-46.
8. Ribeiro APL, Oliveira BGRB, Soares MF, Barreto BMF, Futuro DO, Castilho SR. Effectiveness of papain gels at 2% and 4% in the healing of venous ulcers. *Revista da Escola de Enfermagem da USP, São Paulo*, v. 49, n. 3, p. 394-400, June 2015. ISSN 1980-220X. Disponível em: <https://www.revistas.usp.br/reeusp/article/view/103220>. Acesso em: 06 June 2018. doi:<http://dx.doi.org/10.1590/S0080-623420150000300006>.
9. Ferreira AM, Oliveira KA, Vieira LC, Rol JL. Review of clinical nursing studies: use of papain for the treatment of wounds. *Rev. Enferm. UERJ* [Internet] 2005 set-dez 13(3):382-89. Available from: <http://www.facenf.uerj.br/v13n3/v13n3a14.pdf>
10. Pinto CASO, Green D, Baby AR, Ruas GW. Determination of Papain Activity in Topical Dosage Forms: Single Laboratory Validation Assay. *Lat. Am. J. Pharm.* 2007;26(5):771-5.
11. Alvarez OM, Fernandez-Obregon A, Rogers RS, Bergamo L, Masso J, Black M. A prospective, randomized, comparative study of collagenase and papain-urea for pressure ulcer debridement. *Wounds: A Compendium of Clinical Research & Practice*. 2003; 15(4):293-301.
12. Weir D, Farley KL. Relative delivery efficiency and convenience of spray and ointment formulations of papain/urea/chlorophyllin enzymatic wound therapies. *J Wound Ostomy Continence Nurs* 2006 Sep-Oct; 33(5):482-90.
13. Monetta L. The importance of the nurses' scientific performance in the execution of dressings made with papain. *Rev Paul Enferm*. 1990 set-dez; 9(3):83-7.
14. Monetta, L. *Evolutionary analysis of the healing process in diabetic, pressure and venous ulcers with papain use* [Master's Dissertation]. São Paulo: Universidade de São Paulo; 1998.
15. Marques GS, Nascimento DC, Monteiro AP. Protocolo 4: Estomatoterapia. In: Souza RD; Assad LG; Paz AFD (org.) *Procedimentos Operacionais – padrão de Enfermagem*. Volume II- Parte I. São Paulo: Triunfal, 2015. p.142-6.
16. Beck CLC, Leopardi MT. From the trivialization of suffering to its ethical resignification in the organization of work. *Rev. bras. enferm.* [Internet]. 2002 Oct [cited 2018 May 14]; 55(5): 601-601. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672002000500021&lng=en. <http://dx.doi.org/10.1590/S0034-71672002000500021>.
17. Amorim, RC. The question of gender in teaching in nursing. *Rev. Enferm. UERJ*, Rio de Janeiro, 2009 jan/mar; 17 (1), 64-8.
18. Velho MTAC, Haeffner L, Santos FG, Silva LC. Medical residency in a university hospital: residents' view. **Rev. bras. educ. med.**, Rio de Janeiro, v.36,n.3,p.351-357, Sept. 2012. Available from http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0100-55022012000500009&lng=en&nrm=iso. access on 06 June 2018. <http://dx.doi.org/10.1590/S0100-55022012000500009>.
19. Silva CCR, Rogenski NMB. Use of papain: Knowledge of nurses in a hospital in the city of São Paulo. *Rev Estima* 2010;8(1):12-17.
20. Quiñones D, Alonso S, López R, Sánchez I, Rodríguez F, Fernández L, Jerez J. Contact urticaria, rhinoconjunctivitis, and occupational papain bronchial asthma. *Allergol Immunopathol (Madr)*. 1999 Sep-Oct;27(5):273-5.
21. Mandelbaum SH, Mandelbaum MHS, Santis EP. Healing: Current Concepts and Ancillary Resources - Part II. *Anais Brasileiro de Dermatologia*. 2003; 98(5):525-40.
22. Brasil. Decreto n. 94.406/87. Regulamenta a Lei n. 7498, de 25 de junho de 1986. Which provides for the exercise of Nursing and gives other measures. In: Conselho Federal de Enfermagem (COFEn) [Internet]. Brasília; 1987 [citado 2018 maio 28]. Disponível em: http://novo.portalcofen.gov.br/decreto-n-9440687_4173.html