

Efficacy of Regenèr Emulsion Moisturizer in Diabetic Patients*Eficacia del humectante en emulsión Regenèr en pacientes diabéticos**Eficácia do hidratante Regenèr emulsão em pacientes diabéticos***Juliano André da Silva¹**

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This study aimed to evaluate the effectiveness of Regenèr Emulsion moisturizer in the process of regeneration and maintenance of skin health in the lower limbs of patients with Diabetes Mellitus. Qualitative, exploratory, case-study research, carried out in a public hospital in Greater Florianópolis, Santa Catarina, between August and October 2020. The results reported by the patients were the reduction of dryness of the skin on the legs and/or feet or xerosis, improvement in skin color related to diabetic dermopathy lesions, improvement in skin sensitivity and resistance, reduction of itching, reduction of skin discomfort and discomfort, as well as improvement in the skin and its color, when compared to the initial day and the day end of treatment. It is concluded that the study has great relevance for the field of nursing, it presents an approach to preventive care and effective hydration for maintaining the quality of the skin of the lower limbs of diabetic patients.

Descriptors: Diabetes Mellitus; Nursing; Skin; Wound Closure Techniques; Fluid Therapy.**Resumen**

Este estudio tuvo como objetivo evaluar la efectividad de la crema hidratante Regenèr Emulsion en el proceso de regeneración y mantenimiento de la salud de la piel en los miembros inferiores de pacientes con Diabetes Mellitus. Investigación cualitativa, exploratoria, de estudio de caso, realizada en un hospital público de Gran Florianópolis, Santa Catarina, entre agosto y octubre de 2020. Los resultados reportados por los pacientes fueron la reducción de la sequedad de la piel de piernas y / o pies o xerosis, mejora del color de la piel relacionada con las lesiones de la dermatopatía diabética, mejora de la sensibilidad y resistencia de la piel, reducción del picor, reducción del malestar y malestar de la piel, así como mejora de la piel y su color, en comparación con el día inicial y el día fin del tratamiento. Se concluye que el estudio tiene gran relevancia para el campo de la enfermería, presenta un enfoque de cuidados preventivos e hidratación eficaz para mantener la calidad de la piel de los miembros inferiores de los pacientes diabéticos.

Descriptoros: Diabetes Mellitus; Enfermería; Piel; Técnicas de Cierre de Heridas; Fluidoterapia.**Resumo**

Objetivou-se avaliar a eficácia do hidratante Regenèr emulsão no processo de regeneração e manutenção da saúde da pele dos membros inferiores de pacientes com Diabetes Mellitus. Pesquisa qualitativa, exploratória, tipo estudo de caso, realizada em uma instituição hospitalar pública na Grande Florianópolis em Santa Catarina, entre agosto e outubro de 2020. Os resultados relatados pelos pacientes foram à redução do ressecamento da pele das pernas e/ou pés ou xerose, melhora da coloração da pele referente às lesões da dermatopatia diabética, melhora da sensibilidade e resistência da pele, redução do prurido, diminuição do incômodo e desconforto da pele assim como a melhora na pele e sua coloração, quando comparada ao dia inicial e o dia final do tratamento. Conclui-se que o estudo possui grande relevância para a área da enfermagem, apresenta uma abordagem sobre os cuidados preventivos e de hidratação eficaz para a manutenção da qualidade da pele de membros inferiores dos pacientes diabéticos.

Descritores: Diabetes Mellitus; Enfermagem; Pele; Técnicas de Fechamento de Ferimentos; Hidratação.

Introduction

Diabetes Mellitus (DM) is a highly prevalent disease with high morbidity and mortality. According to data from the 9th Diabetes Atlas, of the International Diabetes Federation (IDF), in 2019 the estimate was 463 million diabetics, with about 32 million cases in Central and South America. While in Brazil, 17 million adults (between 20 and 79 years old) live with diabetes, equivalent to 11.4% of the population in this age group. Compared to the penultimate IDF survey, carried out in 2017, the increase in cases in Brazil was 31%. This puts Brazil in the list of the ten nations that had the highest increase in cases of the disease worldwide¹.

The growing urbanization has brought changes in lifestyle, diet, reduction in the frequency of physical activity with an increase in obesity rates, which are factors that contribute to the higher prevalence of DM. In addition to serious renal, vascular, and ophthalmological complications, the skin can be compromised by several diseases directly related to diabetes or with associations that are not yet fully proven².

Individuals with DM are, in general, individuals vulnerable to a series of complications of an infectious nature, such as bacterial, fungal, and viral processes³.

Skin infections are frequent in DM, especially in type 2 DM, and its incidence is higher in diabetics compared to the general population and is correlated with blood glucose levels. Skin and soft tissue infections are of particular importance in diabetic patients as skin lesions can appear as a gateway for bacteria¹.

In one study, 125 patients with type 1 and 2 DM were evaluated at a center in Argentina. The study showed a 90.4% prevalence of skin diseases, including xeroderma (69%), dermatophytosis (52%), tinea pedis (39%), diabetic dermopathy (35%) and skin thickening syndrome (25%) and diabetic foot (24%) among others. Differences in injury patterns remain unclear between types of diabetes. A total of five studies evaluated skin diseases in types 1 and 2 DM. Chatterjee et al. (2014) found the highest prevalence of skin disorder in type II DM (75.6 vs 41%). The most common skin disorders in type 1 DM were diabetic xerosis, infections and diabetic hand. The most frequent disorders in type 2 DM were infections, xerosis and diabetic dermopathy⁴⁻⁷.

Diabetic dermopathy (DD) is the most common specific skin lesion in patients with diabetes. It presents, on the skin, circumscribed brownish lesions located on the lower limbs of diabetic patients. Its incidence can range from 7% to 70% of diabetic patients. DD is most often seen in elderly patients, older than 50 years and in those with a long history of diabetes. Also, it is more common in men. The origin of DD is unknown and there is no relationship with the decrease in local perfusion. Another possible explanation is due to mild trauma that does not compromise healing. As DD tends to occur over bony prominences, it is suggested that it occurs in response to sudden trauma. DD consists of brownish depressions with small, well-defined surfaces and an atrophic appearance, resembling scars. Lesions are usually less than 1 cm in diameter and have a rounded shape. Occasionally, they can extend and reach up to 2.5 cm. Depressions are mild and hyperpigmented and pigment

intensity is related to the degree of atrophy. Usually asymptomatic, does not cause pain or itchiness, and is usually located bilaterally in pretibial regions and distributed asymmetrically. The appearance of DD at the beginning is poorly documented, being an underreported disease².

Studies report that, in general, skin infection and xerosis have shown to be important and prevalent skin disorders in several studies, regardless of the type of DM. Among skin infections, fungal etiology seems to be the most common and those of bacterial origin are the least frequent. Itching and diabetic dermopathy have also been reported⁸.

Patients affected by diabetes, regardless of the type, present symptoms such as dry and dry skin, which cause skin lesions. They often present with xerosis of the feet, characterized by abnormal and uncomfortable dryness. Just as in diabetics, xerosis can occur, symptoms such as pruritus can also be identified^{9,10}.

Diabetes Mellitus (DM) is often accompanied by generalized pruritus, which is thought to be a result of autonomic dysfunction and diabetic neuropathy. Normalizing blood glucose levels improves symptoms such as itching¹¹.

Skin hydration is one of the strategies used to alleviate the symptoms of skin dehydration, the skin tends to become hydrated, healthy, soft, flexible, elastic and with a good skin appearance with the daily topical use of dermocosmetics. The main mechanisms of action of moisturizers on the skin, from their topical use, are occlusion, wetting and active hydration (or active wetting)¹².

This study is justified by considering that keeping the skin of the lower limbs of patients with DM healthy is a great challenge, considering that many products for skin care, available on the market, have urea as a moisturizing active, which depending on the concentration and the fragility or sensitivity of the patient's skin can irritate and attack the skin, increasing the inflammatory process and compromising its resistance and integrity.

Considering that the ideal form of hydration of an emulsion is through the mechanism of wetting or active hydration granted by the active elements of its composition and not through the occlusion mechanism, Regener Emulsion moisturizer presents this differential, in addition to other benefits such as improved microcirculation and consequent skin oxygenation, allowing a better regeneration of the fragile tissues of the diabetic patient. Therefore, the question is, what is the effectiveness of using Regener Emulsion moisturizer in the skin regeneration process of the lower limbs of DM patients with xerosis, pruritus and diabetic dermopathy?

The relevance of the study lies in evaluating a way to keep the skin of the lower limbs of diabetic patients intact, hydrated, resistant and flexible, with the use of Regener Emulsion, which is an option to improve the quality of life of diabetic patients with xeroderma, itching and diabetic dermopathy, preventing the evolution or worsening of the problem. This study aims to evaluate the effectiveness of the moisturizer Regener Emulsion in the process of regeneration and health maintenance of the two lower limbs of DM



patients who present xerosis, pruritus or diabetic dermopathy.

Methodology

Qualitative, exploratory, descriptive research, case study type, carried out at the Santa Catarina Institute of Cardiology (SC). Qualitative research seeks to deepen knowledge in the social reality, with the richness of meanings peculiar to it, in the individual and collective dynamism that any thought or speech translates into the advancement and approximation of lives between human beings and society¹³.

In the exploratory approach, the study seeks solutions to the phenomenon, in the approach between the population and the study variable. The descriptive approach exposes the results found in this interaction¹⁴.

The case study observes the interaction between the population and the variable(s), integrates reality with theoretical representation, using science to conduct the study in a symbiotic process of objectivity, subjectivity and theoretical support¹⁵.

The Institute of Cardiology of SC is in the city of São José in Greater Florianópolis, a public cardiovascular institution of reference in the state. The choice of the institution was made by one of the researchers who works as a Nurse at the site.

The investigation that uses a case study needs to be careful with the number of analysis units. For this purpose, the following inclusion criteria were defined: patients residing in cities in the Greater Florianópolis region, of both genders, different ages, with type 1 or type 2 diabetes, with intact skin (characteristics and symptoms of xeroderma, diabetic dermopathy and/or itching on the skin of the lower limbs). Exclusion criteria were patients residing outside the cities adjacent to the health institution, pregnant women, patients with allergies to any of the components of Regenè Emulsion, patients with skin lesions, patients with healthy skin appearance who do not present dryness, pruritus or dermopathy diabetic¹⁶.

Three diabetic patients with xeroderma-type skin changes, with pruritus and diabetic dermopathy, male and of varying ages, admitted to the institution, met the inclusion criteria.

The hydration of the skin proposed in the study happened with the regular use of Regenè Emulsion, occurs through the moisturizing mechanism, originating from the natural components of the formulation, which contains hygroscopic amino acids in an emulsion vehicle at physiological pH. In addition to hydration, the anti-inflammatory action of Regenè Emulsion is a highly relevant factor, as it positively affects peripheral microcirculation, resulting in improved oxygenation and consequent improvement in skin quality.

Regenè Emulsion is a dermocosmetic from the Sùmred line, registered with the National Health Surveillance Agency (ANVISA) under MS No. 25351.174631/2019-23 and produced by CNPJ 08.540.561/0001-95, in Santa Catarina. It is a dermocosmetic, pharmaceutical line, emulsion made with

natural actives, highlighting the Aloe Vera extract among its functional actives. Regenè Emulsion is a multifunctional, moisturizing, soothing, dermatological, and clinically tested product indicated for the hydration and care of sensitive skin. It passed a clinical evaluation test of cutaneous acceptability in sensitive skin under normal conditions of use, and an evaluation of tape stripping-induced erythema reduction by mexametry, carried out by the Kosmoscience Laboratory.

The period of data collection was from August to October 2020, with the assessment of volunteers and delivery of the data collection instrument as the initial day. Data collection took place after explaining the research objectives, reading, and signing the Informed Consent Term (FICF), as well as authorization to use the image.

Data collection began after screening the institution's diabetic patients, according to anamnesis and observation of the characteristics of the skin of the lower limbs. Three male patients who met all the inclusion criteria and who voluntarily agreed to participate in the research were selected.

To perform the data collection, an instructional script was created, consisting of: (1) Guiding questions, regarding dryness, sensitivity, itching, irritation, and discomfort; (2) Identification (of the person under study), information collection phase, using various sources (interview, observation, physical examination, patient record); (3) Summary of identified problems or changes, which consists of analyzing and categorizing data for surveying nursing problems; (4) Theoretical foundation. Based on literature, answer how? it's because? to the present situation; (5) Alternatives or proposals, identifying the best solution for the identified problem; (6) Actions implemented or recommended, following the evolution, and recording the changes and (7) Discussion⁵.

The researchers evaluated the evolution of the treatment of skin problems such as diabetic dermopathy, xerosis and pruritus with the moisturizer Regenè Emulsion, together with the nursing staff involved, in the Inpatient Unit of the Medical Clinic and outpatient clinic of the Institution. After the patients were discharged, follow-up was carried out at the volunteer's residence, ensuring assistance and follow-up until the end of treatment. The Regenè Emulsion units were granted free of charge for research at the Institution, by the company Sùmred.

Patients were evaluated on days 0, and on average every 07 days and on day 30. Questionnaires applied on day zero and day 30 of the survey were analyzed and the results presented in table form. After the patient was discharged, periodic follow-up was carried out at the volunteer's residence, ensuring assistance until the end of the proposed treatment.

After data collection, photographic analysis and comparison of images taken at the beginning and on average every 07 days were performed. The comparison was performed by comparing the photos from the first to the last day of records.

In the clinical evaluation test of cutaneous acceptability, Regenè Emulsion was considered of high



tolerance for sensitive skin, supporting the terms clinically tested and dermatologically tested, indicated for sensitive skin, and in the evaluation of induced erythema reduction. Regenèr Emulsion provided a significant reduction in skin erythema, indicating that the product provides a calming effect, accelerating the skin's natural recovery after 60 minutes of application.

Considering that the skin of the lower limbs of diabetics in general is prone to problems of dryness, erythema and xerosis with pruritus, which can lead to lesions that are difficult to regenerate, Regenèr Emulsion is an excellent option for regular preventive care for health maintenance of the skin of diabetic patients.

The research was approved by the Research Ethics Committee of the Institute of Cardiology of Santa Catarina under Opinion No. 4,168,421, fully respecting the requirements of Resolution No. 466/2012, which regulates research involving human beings¹⁷.

Results

The research has the participation of 3 volunteers, who completed the treatment with Regenèr Emulsion. Research participants answered a specific questionnaire for the quality of skin with diabetic dermopathy, xerosis and pruritus, developed by the researchers, which assesses the impact of these dermatological pathologies on quality of life. The results of the initial and final questionnaires are presented in Charts 1 and 2, respectively.

Of these volunteers, three (100%) were men, aged between fifty-two and seventy-seven years old. As for the

reason for admission to the institution, two patients (66.66%) were hospitalized due to lower limb amputation and one (33.34%) due to devascularization of the left lower limb. Two patients (66.66%) had type I diabetes while one (33.34%) was type 2 diabetic. One patient was allergic to dipyrone and had circulatory disease.

One patient was hypertensive and allergic to medications, had a pacemaker and was being treated with heparin. Of the three patients participating in the study, all (100%) had thin skin and two (66.66%) had scaly and crusted skin. One patient (33.34%) had rough skin while one patient (33.34%) had smooth skin. Two participants (66.66%) had diabetic dermopathy, two (66.66%) reported severe itching and one (33.34%) moderate itching, while the three patients (100%) had xerosis.

Regarding lifestyle, none of the 3 participants was a smoker, and did not consume too much alcohol, all maintained a regular diet, sunbathed, and performed daily skin hygiene. Two participants (66.66%) used moisturizer on the skin of the lower limbs, while one (33.34%) did not use moisturizer.

All participants received a 200g bottle of Regenèr Emulsion and were instructed on how to apply it to the skin and frequency of use.

Chart 1 depicts the result of the questionnaire applied to research patients before starting treatment. The responses were characterized as intensity in 0-5, with 0 being a portrait of absence, values of 1-3 considered insufficient and 4-5 adequate.

Chart 1. Questionnaire applied before treatment to assess skin conditions. Values from 0 to 5 characterize the intensity. Santa Catarina, SC, Brazil, 2020

QUESTIONS	0	2-3	4-5
Are you aware of the skin problems diabetes can cause?	1		2
Do you worry about the skin on your legs and feet?			3
Do you find the skin on your legs and feet sensitive?			3
Do you feel dry skin on your legs and feet?			3
Do you feel itchy in your legs?		1	2
Are you bothered by dry and itchy skin?			3
Do you feel your skin dry and irritated with the use of bar soap?			3
Have you noticed any side effects from using another product to treat the skin on your legs and feet?	2		1

The same questionnaire was applied after 30 days of using Regenèr Emulsion.

Chart 2. Questionnaire applied at the end of treatment to assess skin conditions. Values from 0 to 5 characterize the intensity. Santa Catarina, SC, Brazil, 2020

QUESTIONS	0	1-3	4-5
Did you feel your skin less sensitive and more resistant after the end of the treatment?			3
Did you feel improvement regarding the dryness of the skin on your legs and feet after the end of the treatment?			3
Did you feel a reduction in the itching after the end of the treatment?			3
Did you feel a decrease in skin discomfort and discomfort after the end of the treatment?			3
Did you feel a decrease in the persistence/frequency of itching and dryness after the end of the treatment?			3
Did your skin feel less sensitive after the end of the treatment?			3
How do you rate your skin improvement compared to the last time you filled out this questionnaire?			3
After finishing the treatment, do you think your skin looks better?			3



On a scale of 0 to 5, with 0 corresponding to none or little and 5 corresponding to much improvement, how do you rate this treatment in terms of satisfaction, well-being, and comfort that it provided you?			3
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The results evaluated and reported by the volunteers after 30 days of using Regenè Emulsion, recorded in Chart 2, confirm the reduction in dryness or xerosis, in itching and in the color of the skin related to the lesions of diabetic dermopathy.

As for the evolution of the skin of the patients participating in the research, a photographic record was taken before and after the 30 days with regular use of the moisturizer Regenè Emulsion. The photos below depict the skin of the lower limbs at the beginning of each patient's treatment and after 30 days of treatment.

Figure 1. Start of Treatment Patient 01. First day or day 0. Santa Catarina, SC, Brazil, 2020



Figure 2. End of Treatment Patient 01. 30 days after treatment. Santa Catarina, SC, Brazil, 2020



Figure 3. Start of Treatment Patient 02. First day or Day 0. Santa Catarina, SC, Brazil, 2020



Figure 4. End of Treatment Patient 02. 30 days after. Santa Catarina, SC, Brazil, 2020



Figure 5. Start of Treatment Patient 03. First day of treatment. Santa Catarina, SC, Brazil, 2020



Figure 6. End of Treatment Patient 03. 30 days after. Santa Catarina, SC, Brazil, 2020



All research participants reported that they felt less sensitivity and more skin resistance at the end of the treatment, they felt improvement in terms of dryness of the skin on the legs and feet after the end of the treatment, they felt reduced itching after the end of the treatment, they

reported the decreased discomfort and discomfort of the skin after the end of the treatment, they felt a decrease in the persistence and frequency of itching and dryness after the end of the treatment, reported an improvement in the skin compared to the initial day of treatment, considered



that the appearance of the skin had improved and reported satisfaction, well-being and comfort to the treatment proposed by the researchers.

Discussion

According to the results presented in Table 2 and in the photographic records, the participants reported that they obtained an improvement in terms of skin dryness, reduction in pruritus, reduction in sensitivity and discomfort. They also reported an improvement in the appearance and strength of the skin.

Such findings may be related to the mechanism of action of the actives in Regenèr Emulsion, a product intended for the care of sensitive skin such as that of diabetics. The product has a moisturizing, calming (anti-inflammatory), regenerating, and restoring action of the hydro lipid mantle, improving the barrier function, and reducing transepidermal water loss. As the Regenèr Emulsion moisturizer improves skin microcirculation, it consequently offers more oxygen to the skin, resulting in better coloration, greater firmness, and skin resistance.

A study carried out on skin care products reinforces that the products to be used should be chosen with the objective of improving the skin's hydration and restoring its barrier function. They must, therefore, contain rehydrating and lipid replacement components. The "drier" the skin appears, the greater the need for the lipid content of the treatment emulsion (preferably using water-in-oil formulations)¹⁰.

Nurses should expand their conception of the productive purposes of products in preventing complications of chronic diseases, despite the patients in the study being hospitalized in a cardiology institution. The holistic view of nurses allows patients to become active agents in the administration of care and the use of technologies¹⁸.

In the study, the researchers recognize that care and technology are allied in the prevention of skin disorders, recognized in laws and theories by various sciences such as physiology, pharmacology, nursing, nutrition and cosmetology¹⁹.

In this sense, Regenèr Emulsão maintains in its composition a balance between water and lipid contents (medium chain triglycerides), which confers a restoring property of the barrier function, without excess lipid elements, which could compromise treatment adherence. The replacement of the hydrolipidic mantle is complemented by the application of Regenèr Emulsion, by its moisturizing action, given by hygroscopic amino acids from aloe vera, by panthenol and by the allantoin in the composition, which act synergistically, enhancing their functions, as they are products of natural origin.

A study showing the use of medicinal plants in diabetic patients who presented xerosis and fissure in the feet highlights that currently there are several herbal products with pro-healing and curative properties, which have been used to treat skin lesions and that such herbal medicines improve blood clotting, fight infection, and accelerate healing and have fewer side effects than many chemicals used for the same purpose²⁰.

In the search for alternative therapies to allopathic treatments for dermatological pathologies, a paper proposes the use of homeopathy, in topical formulations, associating the traditional knowledge of homeopathy with the technology of basic cosmetics such as creams and gels. The results obtained in some cases, even where traditional allopathic treatment did not achieve the expected success, were quite representative, with fewer side effects and improvement in the dermatological pathology²¹.

Confirming the benefits of herbal dermocosmetics, a study carried out with calendula cream showed excellent results in the treatment of lower limb injuries in 4 diabetic patients, preventing the progress of the infection, reducing itching, redness, and pain, reducing skin dryness, in addition to reducing the appearance of scars, allowing the hair on the legs to grow back, without any intolerance, just a great satisfaction for patients²².

It was possible to observe a favorable result with the marked improvement in terms of well-being and satisfaction with the treatment proposed with the emollient cream Regenèr Emulsion, which attests to the results obtained in other studies, such as a study carried out with forty patients with diabetes, which evaluated the application of an emollient with 5% urea and 0.2% hydroxyethylpiperazine ethanes sulfonic acid, associated with sodium lactate, glycerol, isostatic acid derivatives, shea butter, bisabolol and glycine, twice a day, for one month in one arm and one leg, under normal conditions, and presented, as a result, a skin hydration rate in diabetics similar to that of healthy people. The improvement in dry skin was accompanied by a significant reduction in flaking and itching of the skin, as well as a significant improvement in skin barrier function, demonstrating that emollient treatment can be helpful in limiting the skin complications associated with increased blood sugar²³.

The use of an emollient cream with 15% glycerol and 10% liquid paraffin on xerosis of the foot in 57 patients with diabetes, for 28 days, demonstrated that treatment with an emollient is effective in improving the xerosis of the foot in patients with diabetes and that the improvement began to be observed from the fourteenth day. The study considers that an effective treatment must be able to restore the skin barrier and prevent water loss, to maintain adequate hydration and skin protection²⁴.

It is believed that the results obtained are related to the combination and balance of the contents of the natural actives of Regenèr Emulsion, mainly Aloe Vera, Chamomile and Calendula, which act in synergy, presenting moisturizing properties through the wetting mechanism, remaining for more than eight hours after application to the skin and the composition's emollients, such as caprylic carpal acid triglycerides, which promote greater skin flexibility, reduced inflammation, improved microcirculation and consequent tissue oxygenation, which is essential to maintain health and skin integrity.

Final Considerations

Dermatoses are undoubtedly very inconvenient and uncomfortable for those who have them and constitute a



challenge for health professionals. Many patients have dermatoses and cannot find an adequate form of prevention or treatment.

Thus, the study shows that after using the moisturizer and emollient Regenèr Emulsion, it was possible to observe, both from the appearance of the skin and from the reports of the participants, that there was a reduction in xerosis, that the lesions of diabetic dermopathy were alleviated and the itching on the skin of the volunteers' lower limbs also had a significant reduction.

After using Regenèr Emulsion as a daily moisturizer on the skin of the lower limbs of these patients for 30 days, there was a positive impact on the lives of the study participants, bringing more comfort and improving self-esteem and well-being.

Therefore, the results point positively to the choice of Regenèr Emulsão as a moisturizer for the skin of the lower

limbs of diabetics, promoting the maintenance of the skin's barrier function and minimizing dryness, improving coloration, and reducing skin itching. The product promoted positive effects in the attenuation and control of symptoms of dermatological pathologies, positively impacting the health of the skin and the quality of life of users.

The study has great relevance for the nursing area, as it presents an approach to preventive care and effective hydration with a specific natural product for the maintenance of the quality and health of the skin of the lower limbs of diabetic patients.

Thus, the present work does not aim to exhaust the theme, but to serve as a parameter for further studies with Regenèr Emulsion or other moisturizing and emollient products, in order to bring more scientific evidence in relation to the prevention of dermatological problems on the skin of the lower limbs of diabetics.

References

1. Sociedade Brasileira de Diabetes (SBD). Diretrizes da Sociedade Brasileira de Diabetes [Internet]. São Paulo (SP): SBD; 2019 [acesso em 5 mai 2020]. Disponível em: <http://www.saude.ba.gov.br/wp-content/uploads/2020/02/Diretrizes-Sociedade-Brasileira-de-Diabetes-2019-2020.pdf>
2. Mendes AL, Miot HA, Haddad JV. Diabetes mellitus and the skin. *An Bras Dermatol*. 2017;92(1). DOI: 10.1590/abd1806-4841.20175514
3. Dahlke RJ, Botelho TKR, Loch AP, Cordova CMM. Micoses superficiais em pacientes com diabetes mellitus atendidos em um ambulatório geral em Blumenau, SC. *Rev. bras. Anal [Internet]*. 2015 [acesso em 5 mai 2020];47(4). Disponível em: <https://pesquisa.bvsalud.org/portal/resource/pt/lil-797102>
4. Raposo JTB. Lesões cutâneas no diabetes mellitus - Área Científica de Dermatologia [Dissertação]. Mestrado em Medicina da Faculdade de Medicina da Universidade de Coimbra [Internet]. Coimbra, Portugal; 2016 [acesso em 21 abr 2020]. Disponível em: <https://estudogeral.uc.pt/handle/10316/36929>
5. Galdeano F, Zaccaria S, Parra, V, Gianini ME, Salomón S. Manifestaciones cutáneas de la diabetes mellitus y su importância. *Dermatol. Argent [Internet]*. 2010 [acesso em 21 abr 2020];16(2). Disponível em: <https://www.dermatolarg.org.ar/index.php/dermatolarg/article/view/563/267>
6. Chatterjee N, Chattopadhyay C, Sengupta N, Chancal D, Sarma N, Pai SK. An observational study of cutaneous manifestations in diabetes mellitus in a tertiary care Hospital of Eastern India. *Indian J Endocrinol Metab [Internet]*. 2014 [acesso em 21 abr 2020];18(2). Disponível em: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3987274/>
7. International Diabetes Federation (IDF). Global guideline for type 2 diabetes [Internet]. 2017 [acesso em 30 abr 2020]. Disponível em: <https://www.idf.org/e-library/guidelines/79-global-guideline-for-type-2-diabetes>
8. Sanad EM, Elfangary MM, Sorour N, Elnemisy NM. Skin manifestations in Egyptian diabetic patients: a case series study. *Egyptian Journal of Dermatology and Venereology [Internet]*. 2013 [acesso em 22 abr 2020];33(2). Disponível em: https://www.ejdv.org.net/temp/EgyptJ DermatolVenerol33256-4116559_112605.pdf
9. Cruz RO, Acioly CMC, Araújo AA, Arruda AJCG. Xerose cutânea em idosos: a importância do cuidado de enfermagem especializado. *Revista UNINGÁ [Internet]*. 2016 [acesso em 22 abr 2020];49. Disponível em: <http://revista.uninga.br/index.php/uninga/article/view/1296>
10. Augustin M, Wilsmann TD, Korber A, Kerscher M, Itschert G, Dippel M, et al. Diagnosis and treatment of xerosis cutis: a position paper. *J Dtsch Dermatol Ges*. 2019;17(7). DOI: 10.1111/ddg.13906
11. Valente C, Rosmaninho I. Prurido crônico: da etiologia ao tratamento. *Rev Port Imunoalergologia* 2019;27(3). DOI: 10.32932/rpia.2019.07.017
12. Amaral KfV, Souza RBA. A importância da Hidratação Cutânea para melhor tratamento das disfunções estéticas. *Rev. Mut. Psi*. 2019;13(48). DOI: 10.14295/online.v13i48.2284
13. Minayo MC. Pesquisa social teoria, método e criatividade. 34.ª Edição. Petrópolis: Editora Vozes; 2016.
14. Freitas WRS, Jabbour CCJ. Utilizando estudo de casos(s) como estratégia de pesquisa qualitativa: boas práticas e sugestões. *ESTUDO & DEBATE [Internet]*. 2011 [acesso em 30 nov 2020];18(2). Disponível em: <https://www.nelsonreyes.com.br/560-566-1-PB-2.pdf>
15. Orsolini AVP, Oliveira SFP. Estudo de caso como método de investigação qualitativa: uma abordagem bibliográfica. Franca: Uni-FACEP [Internet]. 2010 [acesso em 30 nov 2020]. Disponível em: http://pos.unifacep.com.br/_livros/Cultura_Desenv/Artigos/Alba_Sheila.pdf
16. Abreu DPG, Ávila JA, Santos SSC, Ilha S, Silva BT. Report study contributions to the nursing care: an experience report. *Rev enferm UFPE On-line*. 2016;10(3). DOI: 10.5205/reuol.8702-76273-4-SM.1003201627
17. Ministério da Saúde (BR). Resolução n.º 466, de 12 de dezembro de 2012. Dispõe sobre diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. *Diário Oficial da União [Internet]*. Brasília (DF): MS; 2013 [acesso em 30 nov 2020];12(1). Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.htm
18. Pereira AS, Bezerra CCC, Almeida ACL, Silva MRB, Souza DRS, Silva KCF, et al. A importância do conhecimento do enfermeiro na prevenção das lesões por pressão em pacientes submetidos à posição prona. *Glob Acad nurs*. 2021;2(Spe.2):e115. DOI: 10.5935/2675-5602.20200115



19. Pereira VFR, Maciel CM, Dázio EMR, Nascimento MC, Fava SMCL. Cuidado de enfermagem às pessoas com deficiência na atenção primária à saúde. *Glob Acad Nurs*. 2021;1(1)e7. DOI: 10.5935/2675-5602.20200007
20. Silva LL, Lopes PF, Monteiro MHDA, Maceo HW. Importância do uso de plantas medicinais nos processos de xerose, fissuras e cicatrização na diabetes mellitus. *Rev. Bras plantas med*. 2015;17(4). DOI: 10.1590/1983-084X/14_078
21. Andréo BGC, Valderrama RF. Emprego da homeopatia para afecções cutâneas de resultado inestético: evidências da literatura. *Revista Brasileira Multidisciplinar [Internet]*. 2020 [acesso em 30 nov 2020];23(1). Disponível em: <https://go.gale.com/ps/i.do?id=GALE%7CA632709421&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=14153580&p=AONE&sw=w&userGroupName=anon%7Eea2b79b3>
22. Cioinac SE. Use of calendula cream balm to medicate the feet of diabetic patients. *Int. J. Nurs. Sci [Internet]*. 2016 [acesso em 30 nov 2020];3. Disponível em: <https://reader.elsevier.com/reader/sd/pii/S2352013215300533?token=4E1BD7217DEA64FF85FAEB22E84F9570AD3FD4385BB87B0889B590D4DA59D3F45D6CB585ADB5E82A3D67EF5372A9DA12&originRegion=us-east-1&originCreation=20210922141048>
23. Seité S, Khemis A, Rougier A. Importance of treatment of skin xerosis in diabetes. *J Eur Acad Dermat Venereol*. 2011;25(5). DOI: 10.1111/j.1468-3083.2010.03807.x
24. Martini J, Huertas C, Turlier V, Martory CS, Delaure A. Efficacy of an emollient cream in the treatment of xerosis in diabetic foot: a double-blind, randomized, vehicle-controlled clinical trial. *Eur Acad Dermatol Venereol*. 2017;31(4). DOI: 10.1111/jdv.14095

