EXPERIENCE REPORT

REVISTA ENFERMAGEM ATUAL IN DERME

USE OF NEGATIVE PRESSURE WOUND THERAPY FOR THE HEALING OF ONCOLOGIC WOUNDS: AN EXPERIENCE REPORT

USO DE LA TERAPIA POR PRESIÓN NEGATIVA PARA LA CICATRIZACIÓN DE HERIDAS ONCOLÓGICAS: REPORTE DE EXPERIENCIA

USO DA TERAPIA POR PRESSÃO NEGATIVA PARA CICATRIZAÇÃO DE FERIDAS ONCOLÓGICAS: RELATO DE EXPERIÊNCIA

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ABSTRACT
Introduction: Negative Pressure Therapy (NPT) is an effective method for treating chronic and complex wounds, particularly in oncologic patients. The healing process in these cases is often hindered by factors such as immunosuppression, chemotherapy, radiotherapy, and malnutrition. **Objective:** To explain the use of NPT in managing an abdominal surgical wound in an oncologic patient receiving palliative care, emphasizing its effects on wound healing and the patient's quality of life. **Methods:** This descriptive study was conducted in a hospital in southern Brazil. The patient was a 66-year-old male with a complex wound caused by a laparotomy and tumor removal. The RENASYS system was used over eight dressing changes across an eight-week period, with pressure adjustments made according to the treatment phase. The results showed significant wound reduction, faster granulation tissue formation, a lower risk of infection, and improved patient comfort. During the sixth dressing change, secondary intention closure was performed to promote faster healing. **Results:** The multidisciplinary approach, including nutritional support and physical therapy, enhanced the outcomes. NPT proved to be an effective and cost-efficient alternative, even in palliative care, contributing to a reduction in complications and an improvement in quality of life. **Conclusion:** In conclusion, NPT is an innovative approach for managing wounds in oncologic patients, combining technology with clinical care. Further research is recommended to standardize treatment protocols and broaden its use in similar cases.
Keywords: Negative-Pressure Wound Therapy; Wound; Wound Healing; Palliative Care; Health Technology.

RESUMEN
Introducción: La Terapia por Presión Negativa (TPN) es una técnica efectiva para tratar heridas crónicas y complejas, especialmente en pacientes oncológicos. La cicatrización de estas heridas suele ser más difícil debido a factores como la inmunosupresión, los efectos de la quimioterapia y la radioterapia, así como la desnutrición. **Objetivo:** Describir la aplicación de la TPN en el tratamiento de una herida quirúrgica abdominal en un paciente oncológico en cuidados paliativos, resaltando su efecto en el proceso de cicatrización y en la mejora de la calidad de vida. **Métodos:** Este es un estudio descriptivo realizado en un hospital del sur de Brasil. El paciente, un hombre de 66 años, presentaba una herida compleja tras una laparotomía y la extracción de un tumor. Se empleó el sistema RENASYS en ocho cambios de apósitos a lo largo de ocho semanas, ajustando la presión según la fase del tratamiento. Los resultados evidenciaron una mejora significativa de la herida, con una aceleración en la formación de tejido de granulación, una disminución del riesgo de infección y un mayor confort para el paciente. En el sexto cambio de apósito, se realizó un cierre por segunda intención para favorecer una cicatrización más rápida. **Resultados:** Un enfoque multidisciplinario, que integró apoyo nutricional y fisioterapia, mejoró significativamente los resultados. La TPN se mostró como una opción eficaz y rentable, incluso en el contexto de los cuidados paliativos, ayudando a reducir complicaciones y a mejorar la calidad de vida del paciente. **Conclusión:** TPN es una herramienta innovadora para el tratamiento de heridas en pacientes oncológicos, al combinar tecnología avanzada con cuidados clínicos especializados. Se sugiere realizar más estudios para estandarizar los protocolos y expandir su uso en situaciones similares.
Palabras clave: Terapia por Presión Negativa para Heridas; Herida; Cicatrización de Heridas; Cuidados Paliativos; Tecnología Biomédica.

RESUMO
Introdução: A Terapia por Pressão Negativa (TPN) é uma tecnologia eficaz no tratamento de feridas crônicas e complexas, como as de pacientes oncológicos. Essas feridas enfrentam dificuldades de cicatrização devido a fatores como imunossupressão, quimioterapia, radioterapia e desnutrição. **Objetivo:** Descrever o uso da TPN no manejo de uma ferida operatória abdominal de um paciente oncológico, em cuidados paliativos, destacando seu impacto na cicatrização e na qualidade de vida. **Métodos:** Trata-se de um estudo descritivo realizado em um hospital no sul do Brasil. O paciente, homem de 66 anos, apresentava ferida complexa decorrente de laparotomia e retirada de tumor. O sistema RENASYS foi utilizado em oito trocas de curativo ao longo de oito semanas, com pressões ajustadas conforme o estágio do tratamento. Resultados mostraram significativa regressão da ferida, com aceleração da formação de tecido de granulação, redução do risco de infecção e maior conforto. Na sexta troca, foi realizada aproximação por segunda intenção para acelerar a cicatrização. **Resultados:** A abordagem multiprofissional, incluindo suporte nutricional e fisioterapia, potencializou os resultados. A TPN demonstrou ser uma alternativa eficaz e custo-efetiva, mesmo em cuidados paliativos, contribuindo para redução de complicações e melhora da qualidade de vida. **Conclusão:** Conclui-se que a TPN é uma ferramenta inovadora no manejo de feridas em pacientes oncológicos, aliando tecnologia e cuidado clínico. Estudos adicionais são recomendados para padronizar protocolos e expandir sua aplicação em contextos semelhantes.
Palavras-chave: Tratamento de Ferimentos com Pressão Negativa; Ferida; Cicatrização; Cuidados Paliativos; Tecnologia em Saúde.

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INTRODUCTION

The age distribution in Brazil has changed significantly in recent years, with a substantial increase in the elderly population, now one of the country's largest demographic groups[1]. This shift highlights the need for greater attention to the health care needs of this population, particularly in long-term care facilities, where patients with complex conditions, such as cancer, require specialized treatment. One major challenge is the management of oncologic wounds, which can result from extensive surgeries, radiotherapy, chemotherapy, or cancer-related complications.

Wounds in oncologic patients are often chronic and slow to heal, impacting not only physical health but also the quality of life and emotional well-being of both patients and their families[2]. Negative Pressure Therapy (NPT) has emerged as a promising solution for managing these wounds, supporting faster healing and reducing related complications.

Negative Pressure Therapy (NPT) uses controlled subatmospheric pressure to create an environment that promotes wound healing. This technology stimulates granulation tissue growth, reduces swelling, improves local blood flow, and removes excess fluid and infectious materials[3]. In oncologic patients, whose healing is often compromised by immunosuppression and the side effects of aggressive treatments, NPT has proven to be an effective strategy for improving therapeutic outcomes. However, it is crucial that NPT is only applied after immunological and histopathological evaluations confirm safe and clean surgical margins[4].

Managing oncologic wounds with NPT involves specific challenges. Tissues affected by radiation or tumor necrosis require careful pressure adjustments to avoid further damage. Moreover, continuous monitoring by a multidisciplinary team is essential to ensure effective treatment and to detect potential complications, such as secondary infections[5].

Additionally, the use of NPT in oncologic patients offers notable benefits. Recent studies show that this therapy can speed up healing, lower the risk of infections, and reduce the need for frequent dressing changes, improving patient comfort[4-6]. Furthermore, NPT is versatile and can be applied to different types of wounds, including those with bone exposure or deep tissue involvement, which are common after tumor resections.

Another important advantage of NPT is its potential for home-based use with portable devices. This flexibility is especially beneficial for elderly oncologic patients or those in palliative care, as it enables them to receive effective treatment at home, positively influencing their quality of life[6, 7].

This report aims to show that Negative Pressure Therapy (NPT) is an innovative and cost-effective technology that can significantly improve the management of oncologic wounds. By promoting faster and more effective healing, reducing complications, and enhancing patients' quality of life, NPT proves to be a valuable tool for clinical practice, especially in long-term care facilities. The study also seeks to encourage further research on the potential applications of

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this technology in different oncologic care settings.

METHODS

Study Type

This exploratory descriptive report examines the use of Negative Pressure Therapy (NPT) to promote healing in a complex surgical wound caused by a laparotomy in an oncologic patient receiving palliative care.

Study Location

The study was conducted in a hospital in southern Brazil. This institution is a reference center for the care of elderly patients with oncologic diagnoses.

Ethical Considerations

Since this is an experience report, approval from the Research Ethics Committee was not required. However, verbal consent was obtained from the patient and their family for the use of data and images related to the treatment.

Type of Therapy Applied

The treatment used Negative Pressure Therapy (NPT) from the Smith & Nephew brand. The RENASYS system provides strong clinical effectiveness and versatility, allowing it to be used for a variety of wound types.

RESULTS

This experience report outlines the patient's clinical history, the characteristics of the wound, the therapy applied, and the wound's progression over time.

Patient and Wound Clinical History

The patient is a 66-year-old male with a history of intestinal cancer and metastases in the lungs and brain. Under palliative care, he presented with an abdominal surgical wound resulting from a laparotomy, which included tumor removal and the creation of an active colostomy. The surgery had been performed 45 days before the initiation of NPT. For pain management, the patient was receiving morphine and tramadol, along with ondansetron for nausea. He had previously undergone treatment with both oral and injectable chemotherapy.

On January 3, 2024, after spending 45 days in the Intensive Care Unit (ICU), the patient was transferred to the inpatient unit with an unhealed abdominal surgical wound. Upon admission, the hospital's wound care team assessed the patient and recommended treatment with NPT.

On January 10, 2024, Negative Pressure Therapy (NPT) was initiated A total of eight dressing changes were performed at seven-day intervals. All procedures took place in the surgical center, where sedation was used to provide greater patient comfort and allow for debridement when needed. During the sixth dressing change, secondary intention skin closure was performed to speed up the healing process. The patient discontinued NPT on March 6, 2024.

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Image 1 - Wound on January 3, 2024.

Source: Research Data, 2025**.**

In the inpatient unit, specialized wound care and dressing reinforcement were provided. A multidisciplinary plan was also implemented, which included a customized nutrition plan (enteral diet combined with oral intake) and physical therapy with two daily sessions. Table 1 presents the therapy details and device settings.

Table 1 - Therapy Data.

Week	Therapy Applied	Device Settings
1	NPT with Continuous Pressure	Pressure of 160 mmHg
2	NPT with Continuous Pressure	Pressure of 160 mmHg
3	NPT with Continuous Pressure	Pressure of 140 mmHg
4	NPT with Continuous Pressure	Pressure of 140 mmHg
5	NPT with Continuous Pressure	Pressure of 140 mmHg
6	NPT with Continuous Pressure + Secondary Intention Closure	Pressure of 120 mmHg

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7	NPT with Continuous Pressure + Secondary Intention Closure	Pressure of 100 mmHg
8	NPT with Continuous Pressure	Pressure of 80 mmHg

Source: Research Data, 2025.

Photos 2, 3, and 4 illustrate the wound's progression throughout the treatment period.

Image 2 - Wound on January 17, 2024.

Source: Research Data, 2025.

Image 3 - Wound on January 24, 2024.

Source: Research Data, 2025.

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Image 4 - Wound on February 14, 2024.

Source: Research Data, 2025.

DISCUSSION

Negative Pressure Therapy (NPT) has proven to be an effective method for managing wounds in oncologic patients, especially those with complex or slow-healing wounds. These patients often experience challenges such as malnutrition, immunosuppression, and the side effects of treatments such as radiotherapy, chemotherapy, and extensive surgeries, all of which hinder tissue regeneration. In this context, NPT offers significant advantages, including faster healing and a lower risk of infections, compared to traditional therapies[8, 9].

One of the main ways NPT promotes healing is by stimulating angiogenesis and granulation tissue formation. In oncologic patients, where poor vascularization is a major obstacle, negative pressure helps by removing excess exudate, reducing edema, and creating a more favorable environment for cell growth[10]. The technology also applies micro-deformations to the tissue, which encourages cell proliferation and migration—essential processes for healing chronic or irradiated wounds.

Another key benefit of NPT is its ability to prevent and control infections, a major challenge in treating oncologic wounds. By continuously removing contaminated fluids and maintaining a sterile environment, NPT reduces the bacterial load, helping to prevent infections that could delay recovery[11]. This is especially important for wounds near surgical margins or in areas where tissue is compromised by tumor necrosis.

Beyond its clinical benefits, NPT also improves the quality of life for oncologic patients. It helps reduce pain, minimize unpleasant odors, and decrease the need for frequent dressing changes, all of which enhance patient comfort and well-being. Recent studies indicate that patients undergoing NPT report a greater sense of autonomy and lower treatment-

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related stress, highlighting the psychosocial importance of this therapy[11, 12].

However, it is important to recognize the limitations and challenges of using NPT in oncologic patients. For instance, irradiated tissues may be more fragile, requiring careful adjustments to pressure settings to avoid further damage. Additionally, while the initial cost of the equipment is relatively high, studies suggest that the long-term benefits—such as shorter hospital stays and fewer complications—make NPT a cost-effective solution[12].

Prescribing NPT for oncologic patients requires a multidisciplinary and personalized approach, considering both the specific wound characteristics and the patient's overall condition. Well-defined protocols, along with ongoing evaluation by trained professionals, are crucial for achieving the best results. Furthermore, combining NPT with other treatments, such as advanced wound dressings and nutritional support, can further improve clinical outcomes[1, 12].

In summary, Negative Pressure Therapy (NPT) is a promising tool for treating oncologic wounds, especially when conventional methods are not effective. Its proven efficacy, safety, and positive impact on patients' quality of life make it a valuable addition to oncology treatment options. Nonetheless, further research is needed to improve protocols and explore its use in different oncologic settings.

In this study, NPT played a fundamental role in enhancing the quality of life for both the patient and their family. Institutions that promote the use of NPT have distinguished themselves through technological advancements, offering more effective and innovative treatment options[6].

Study Limitations

As an experience report, the situations described in this study may not fully represent the conditions of other institutions or the profiles of patients in long-term care. The absence of a quantitative and comparative analysis limits the generalization of the findings, emphasizing the need for further research to validate the reported observations.

Contributions to the Health Field

The use of NPT in long-term care institutions can greatly improve wound treatment and enhance patients' quality of life. This innovative technology allows for more effective care, optimizes institutional resources, and improves patient experience by reducing complications and speeding up healing. Further research is required to examine the relationship between high-cost medication expenses and the decreased need for such medications, helping to determine what is more economically beneficial for healthcare institutions and providers.

CONCLUSIONS

This experience report demonstrated the use of Negative Pressure Therapy (NPT) in managing a patient's wound in a hospital setting. The availability of this technology highlights a commitment to core healthcare principles:

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equity, comprehensiveness, and universality. It provides highly effective treatment for patients who may not have access to advanced therapies due to financial or institutional barriers. Moreover, NPT has the potential to lower costs and reduce hospitalization time while improving patient outcomes.

Despite challenges such as limited professional training and access to specific materials, the implementation of NPT is achievable with proper resource management and staff training. NPT is an innovative and highly effective technology that supports faster healing, reduces costs related to dressings and medications, and improves the quality of care. Its use not only benefits patients but also helps advance and enhance healthcare services.

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