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Assessment of Wound Pain

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Abstract*: - *Purpose: *The study was conducted according to a description and regression model in order to study the causes of the pain that occurs in a wound.*

Methods: *The universe and the sample of the study were comprised of 263 patients who were at or above 18 years of age and who agreed to take part in the study out of 752 patients that presented to the outpatient clinic for Plastic Surgery at the University Hospital in the city of Diyarbakır. The data in the study were collected using a 'sociodemographic characteristics form' and a 'structured diagnosis form'. For the analysis of the data, the SPSS 22.0 Statistical package program was utilized. The results were evaluated at a confidence interval of 95% and a significance level of $p<0.05$.*

Findings: *The data in this study were obtained from the following individuals: 171 men and 92 women, with the youngest being 18 and the oldest 97 years old.*

56 patients had a chronic disease. 69.9% of the wounds examined were characterized as acute. The most frequent reason for the wound was surgery (39.9%), the most frequent wound type was that in a granulating tissue (45.5%), and in terms of the types of exudate, serosanguinous and purulent structures were more common (32.6%). It was observed that the wet-to-dry dressing method was the most frequently used dressing method with a rate of 82.5%. In terms of wound site, it was seen that 41.5% of the wounds were in the upper extremity. Among the patients with wounds, 95.1% of the patients (250) reported that they experience pain due to their wounds. Out of those patients, 29 reported that the pain started during the application of dressing. It was reported by 175 patients (28%) that the cleaning procedure increased the pain during the application of dressing and 153 patients (44.1%) reported that having short resting breaks alleviated the pain. When we evaluated the severity of pain that occurred during the application of the dressing, it was determined that 61.6% of patients (154) reported mild pain before the process, 32% of patients (80) reported severe pain during the process, and 44.4% of the patients (111) reported disturbing pain after the process.

Result: *Based on these study results, it is possible to conclude that wrong wound management and dressing selection are among the reasons for pain that occurs during the dressing application. We suggest that the healthcare professionals who apply wound care may not be aware of/do not care about the stress that may occur due to dressing pain and the consequent disruption in wound care as well as any problems that may emerge during the wound healing process. It is recommended that the healthcare professionals participate in the required trainings, pay attention to the requests from patients, stay in contact with the patients to best decrease their stress levels, and provide the required care to minimize pain.*

***Keywords*: -** *Wound, Wound Pain, Assessment of Pain that Occurs during Dressing Application.*

Introduction

A wound is defined as the loss of the normal integrity of the body due to physical damage and the loss of the anatomic structure and function of the tissue (1.2).

While different classifications of wounds exist,

wounds are divided into two types depending on their healing period: acute and chronic wounds. An acute wound is a wound that occurs abruptly and does not leave any damage after healing. The term chronic wound refers to the loss of integrity of skin and a functional loss. In chronic wounds, the healing process takes a long time (3). Regardless of the type, wound care is critical for their healing. The purpose of wound care is to protect live tissue, prevent further tissue destruction in the traumatized area and prevent development of infection, accelerate wound healing, ensure skin integrity, and prevent any complications that can arise in other organs and systems (4). Wound care should be provided in an individualized manner for the patient. The key points to consider in terms of healing the wound and minimizing the pain that can occur in wound care are as follows: the type of injury, the patient's health status, the dressing method used, effectiveness of the healthcare professional applying the dressing, selection of dressing material, and any measures taken to protect the wound and the surrounding tissue during the application of dressing (5, 6).

The pain that is felt during the application and removal of the dressing may increase the patient's lack of compliance with the treatment. Patients may avoid presenting for clinical appointments or delay changing their dressings if they are caring for the wound themselves (6). During the application of the dressing, having sound information about the wound for pain control, good communication skills, showing a multidisciplinary approach, and performing the application gently without compromising the tissues can be effective in alleviating or eliminating pain (7).

The studies performed have identified that the conditions which trigger pain during dressing change include the contact of the wound with air during the removal of dressing, the coldness of solutions used for dressing, the lifting of dressing material that is adhered to the wound, maceration of the wound and surrounding tissue, use of inappropriate wound care materials and debridement (7, 8). The pain that occurs during the dressing application and the stress caused by this pain have negative effects on the wound healing (9). In order to keep the patient's health at the highest level, healthcare professionals need to minimize the patient's dressing- related pain and worry (9).

In addition to the analgesics used to relieve pain during the dressing change, non-pharmacological methods are also employed. A study reported that the method of “virtual reality therapy” used during dressing application in 36 patients with burn injuries aged between 8-57 decreased the level of pain (10). Another study revealed that a significant reduction was achieved in the level of pain experienced during the dressing treatment of two soldiers wounded in war by the use of a virtual reality method (1). Over the years, the wound care methods, ways of treatment, and dressing methods have been improved; however, it appears that the holistic approach towards pain and wound healing is not adequately taken into account and the phenomenon of wound pain persists (5).

Pain ranks first among undesired situations during the application of dressing. Today, it is among the essential responsibilities of healthcare

Professionals to take measures against the expected pain (as in dressing pain) and not cause any pain during the procedure and dressing application performed. On the other hand, a review of the literature didnot present any comprehensive studies recently performed regarding dressing pain.

Pain develops during dressing application due to reasons including the procedure not being performed gently, harming the wound tissue while removing the dressing, and the caregiver not taking patient's complaints into account during dressing application. Furthermore, the reason for the patient's wound and the meaning and importance that the patient ascribes to the dressing may also influence the pain experienced. While this may seem like an expected problem, one should question the severity of pain caused by the dressing application and the types of wounds that cause more severe pain. Also, one should investigate whether dressing materials and dressing methods influence the severity of pain. Answering these questions will contribute to the caregiver’s ability to take measures to alleviate wound pain.

Means and Methods

This study was conducted according to the description and regression model. The universe of the study was comprised of 752 patients that presented to the Plastic Surgery Outpatient Clinic of the university hospital in the city of Diyarbakır between February 5th and March 9th, 2018. The sample comprised 263 of these patients who agreed to take part in the study and were at or above 18 years of age. Data were collected from the patients using the sociodemographic forms and the configured diagnostic forms. The data were evaluated in terms of wound characteristics, wound pain, and causes of the pain that develop during dressing application.

To assess the findings obtained in the study, the SPSS 22.0 Statistics package program was used for performing statistical analyses. While the study data were evaluated, the descriptive statistical methods (Frequency, Percentage, Average, and Standard Deviation) were used. The Pearson Chi-

Square test and Fisher's exact test were used for the comparison of categorical data. The results were assessed as being in a confidence interval of 95% and at a significance level of $p<0.05$.

Findings

Out of the patients that were included in the study, 65% (171) of the patients were male. 28.5% (75) of the patients were in the age range of 20-29 years. The ratio of patients with chronic diseases was 21.3% (56). A review performed according to the type of chronic disease revealed that 42.4% (27) of the patients had Diabetes Mellitus (DM). After that, the patients' wound characteristics were examined. 69.6% (183) were acute wounds according to the time of development of the wound. Regarding the causes of the wounds, 39.9% (105) were surgical wounds. In terms of the appearance of the wounds, 45.5% (192) were wounds with granulating tissue. Finally, judging by the exudate type, it was determined that 32.6%

(87) Had purulent-serosanguinous wounds. Concerning the patients'wound surface areas (cm^2) (62,670 ± 191,419), the smallest wound surface area was 2 cm^2 while the largest was 2400 cm^2. As for the ratio of burn wounds sorted by their surface areas, the ratio of the smallest burn wounds was 1% (0,090 ± 0,120) and the ratio of the largest burn wounds was 60%. Among the patients who had burn wounds, 94.6% (53) of those patients were identified to have a burn degree of 2. The wounds of 41.5% (118) of the patients were in the upper extremity.

It was identified that 95.1% (250) of the patients had pain related to their wound as shown in Table 1. As shown in Table 2, it was determined that 43.3% (239) of the patients who experienced pain due to their wound felt pain during the dressing change while 72.9% (191) of them had pain due to the wound and 33.2% (124) of them experienced throbbing pain. An assessment of the patients' pain during the dressing application found that 28% (175) felt more pain during the cleaning of the wound, while 44.1%

(153) reported that their pain was alleviated by short resting breaks during the dressing application. It was identified that 53.6% (134) of the patients did not take any analgesics for their wounds and that 59.3% (16) of the patients that took analgesics used non-steroidal anti-inflammatory medicines. The study found that 45.6% (114) of the patients had poor sleep due to wound pain. 67.6% (23) of the patients reported that wetting the dressing before its removal alleviated their pain. It was identified that 61.6% (154) of the patients experienced mild pain before the dressing application, 32% (80) felt severe pain during the dressing application, and 44.4% (111) experienced disturbing pain after the dressing application.

As shown in Table 3, 28% (175) of the patients felt more pain while the wound was being cleaned and 44.1% (153) reported that their pain was alleviated when taking short resting breaks during the dressing application.

Only 34 patients answered the question regarding the approaches that alleviated pain during the dressing application. As shown in Table 4, 67.6%

(23) Of the patients reported that wetting the dressing before its removal alleviated their pain during the dressing application.

Discussion

Pain is an unpleasant and undesired sensation. However, many diseases and medical procedures are painful. The dressing change procedure often causes pain as part of medical procedures and care procedures. It was identified in the literature review that Szor et al. determined that 87.5% of the patients experienced pain during the dressing application in a study they conducted in 1999 (12). In line with the data we obtained in this study, 95.1% of the patients in that study experienced pain due to their wound and out of these, the number of patients that felt pain during dressing application was 49.1%. Bowers et al. reported the following as reasons triggering pain during dressing change: contact of wound with air during the removal of dressing, the coldness of solutions used for dressing, lifting of dressing material that is adhered to the wound, maceration of the wound and surrounding tissue, use of inappropriate wound care materials and debridement (7). According to the literature, Jones reported in a study conducted in 2017 that one of the most important reasons for pain that occurred during dressing application was the selection of inappropriate dressing materials (13). The literature review showed that Edwards reported in a study conducted in 2011 that the pain felt during dressing application could sometimes be more severe than the wound pain itself and that the factors leading to this pain included the removal of adhesive dressing and inadequate exudate management. It is necessary to know the wound very well and to provide wound-specific care when applying dressing (14). When we looked at the wounds of the patients included in our study, it was identified that 69.6% (183) were acute wounds as per the time of development of the wound, 39.9% (105) were surgical wounds as per the reasons for wound, 45.5% (192) were wounds with granulating tissue as per the wound appearance and 32.6% (87) were purulent- serosanguinous as per the exudate type. When the properties of dressings applied were observed as part of this study, it was seen that 82.5% (217) of the patients had received wet-to-dry dressings. It was determined that 28% of the factors increasing dressing pain occurred during the cleaningof the dressing wound site while 44.1% (153) reported that taking short breaks during the dressing application was effective as a method to alleviate pain. Szor et al. reported that 18% of the patients mentioned that the pain experienced during dressing change was “terrible” or “agonizing” (12). In our study, it was identified that 61.6% (154) of the patients experienced mild pain before the dressing application, 32% (80) experienced severe pain during the dressing application and 44.4% (111) experienced disturbing pain after the dressing application (Figure 1). The literature review showed that Szor et al. reported in a study conducted in 1999 that only 6% of the patients were administered analgesics to alleviate their pain even though pain was experienced during the application of dressing (12). It was determined in this study that 53.6% (134) of the patients did not take any analgesics for their wounds and that 59.3% (16) of the patients who took analgesics were on non-steroidal anti-inflammatory medicines. In our study, 34 patients made different recommendations for alleviating their pain during the dressing application. Out of these, 67.7% requested that the *dressing be first made wet and then removed*, 17.7% requested that *the wound tissue be handled with care*, 8.8% requested that *analgesics be administered* and 2.9% requested that *they should be distracted during the dressing application*.

Wounds are often painful. A 2106 study reported that another reason for pain during dressing application was the irritation and tears that occurred on the skin during the lifting of dressing and that this mostly stemmed from frequent dressing change in chronic wounds such as pressure wounds (5). As was reported, while the irritation and tears occurring on the skin may cause new wounds, they may also increase the wound surface area, thereby leading to more pain. The severity of wound pain varies according to the wound structure, size, and characteristics. As part of this study, we also assessed the wound surface area (cm^2) and identified that the smallest area was 2 cm^2, the largest was 2400 cm^2. As for the ratio of bum wounds, the ratio of the smallest wounds was 1% and the ratio of the largest wounds was 60%. Regarding the dressing application for burn wounds, one of the painful dressing procedures, it was observed that the duration and severity of pain increased in line with

the surface area of the wound site. A 2013 study reported that the method of virtual reality used to decrease the level of pain during the application of dressing on burn wounds proved to be effective (10). Also, in this study, the patients were asked *whether there were any factors that decreased their pain during the dressing application.* The number of patients who responded to this question was 34 and 2.9% *reported that being distracted decreased their pain*. Judging by the literature review and the results of our study, it was observed that the majority of wounds were painful and that the wound structure, presence of infection, frequency of dressing applications and approach towards the patient had an impact on the severity of pain.

In order to decrease the severity of the dressing procedure, it is necessary to provide wound-specific care. As for the dressing methods used in our study, it was observed that 82.5% were wet-to-try dressings, 13% were dry dressings, 3.8% were negative-pressure wound therapy dressings, and 0.4% were synthetic dressings. A 2012 study reported that the method of dry dressing used for moist wounds with intense discharge had a very high air permeability. Therefore, the probability of an infection was higher and it caused pain during the procedure of lifting the dressing since it adhered to the wound exudate (15). Our study showed that 25.2% of the patients reported increased pain while their dressing was removed. Out of these patients, 21 reported that their pain decreased when they removed the dressing themselves. Out of these patients, 23 reported that they wished the dressing to be made wet using saline solution and then removed. A 2009 study reported that the negative-pressure wound therapy dressings decreased the pain more in comparison with the other pains (16). In this study, the negative-pressure wound therapy dressing was used for ten patients and one of them reported no pain in the wound. Five of the nine patients who reported pain during the dressing application reported that their pain during the dressing application was severe, while four patients reported that their pain during the dressing application was unbearable.

Our study does not correspond to the results reported in the literature. This difference arises from the fact that the healthcare professional applying the negative-pressure wound therapy dressing did not have sufficient knowledge of how to apply the method or had not received sufficient training. With regard to the financial aspect of the dressing methods used, the selection of the appropriate method for ensuring patient comfort and shortening the healing period should be the primary responsibility of the person that applies the dressing.

The fact that the literature data and the results of this study show that the majority of patients experience pain during the dressing application suggests violations of ethics principles in patient care. As a matter of fact, the principle of "premium non nocere" is one of the essential principles to be complied with.

Conclusion

According to the results obtained in this study, it was observed that the reasons for the pain in patients experiencing wound pain include the following: poor wound management and wrong dressing method selection by the healthcare professional as part of wound care due to their lack of knowledge of the wound; tissues not being handled gently due to inadequate time dedicated to the patient, lengthening of the healing period due to the lack of the wound debridement; patient delaying their wound care due to the pain felt during the dressing application, thereby leading to the deterioration of the wound exudate. It was seen that inadequate personal care on the part of the patient also delayed wound healing, which caused the patient to be exposed to repeated, painful dressing application procedures.

Based on these results, the following measures are recommended:

The healthcare professionals performing the wound care procedures should attend the required course and certificate programs so that they can be specialized in the field of wound care.

The institutional policy should take patient comfort and the healing period into account, keep up-to-date with innovations in wound care, and overcome any deficiencies in terms of the materials required for providing the patient with appropriate wound care.

The healthcare professionals that apply dressings should take patients' requests into account and help minimize the dressing-related pain.

Caregivers should consider taking short resting breaks during the dressing application procedure to alleviate the patient's dressing-related pain and the effectiveness of this method should be assessed through the application of different methods such as listening to music or other alternative methods.

References

1. Tepebeşı, M.Y., ve Calapoğlu, N.Ş., 2016. Yara iyileşmesinin hücresel ve moleküler mekanizması. *Süleyman Demirel Üniversitesi Tıp Dergisi*. **23** (4), pp. 140-146.

2. Parsak, C.K., Sakman, G., ve Çelik, Ü. 2007. Yara iyileşmesi, yara bakımı ve komplikasyonları. *Arşiv Kaynak Tarama Dergisi*. **16** (2), pp. 145-159.

3. Çakır Umar, D., ve Turhan Damar, H., 2017. Akut ve kronik yaralar ve hemşirelik bakımı. *Türkiye Klinikleri Dergisi*. **3** (3), pp. 157-163

4. Akyüz, N., 2008. Yara iyileşmesi ve bakımda temel ilkeler. *İstanbul Üniversitesi Cerrahpaşa Tıp Fakültesi Süreli Tıp Eğitim Etkinlikleri Sempozyum Dizisi.* **67**, pp. 11-15.

5. Kim, J.Y., Kim, N.K., & Lee, Y.L., 2016. A descriptive study of Korean nurses' perception of pain and skin tearing at dressing change. *International Wound Journal.* **13**, pp. 47-51.

6. Ross, G.S., 2004. Surgical wound care: current views on minimizing dressing-related pain. *Manchester Royal Infirmary*. **20** (1), pp. 38-40.

7. Bowers, K., &Barrett, S., 2009. Wound related pain features, assessment and treatment. *Continuing Professional Development Primary Health Care*. **19**, pp. 37-45.

8. Upton, D., & Solowiej, K., 2010. Pain and stress as contributors to delay wound healing. *Wound Practice and Research*. **3**, pp. 114- 122.

9. Upton, D., 2014. Psychological aspects of wound care implications for clinical practice. *Wound Care JCN*. **28**(2), pp. 52-57.

10. Feber, A.W., Patterson, D.R., &Bremer, M., 2013. Repeated use of immersive virtual reality therapy to control pain during wound dressing changes in pediatric and adult burn patients. *National Institutes Health of Public Accepp.* **34** (4), pp. 563-568.

11. Maani, C., Hoffman, H.G., Desocio, P.A., Morrow, M., Galin, C., Magula, J., Maiers, A., &Gaylord, K., 2008. Pain control during wound care for combat related burninjuries using cus to matriculated arm mounted virtual reality goggles. *Journal of Cyber Therapy and Rehabilitation*. **1** (2), pp. 193-198.

12. Szor, J.K., &Bourguignon, C., 1999. Description of pressure ulcer pain at rest and dressing change. *Journal of WOCN*. **26** (3), pp. 115-120.

13. Jones, J., & Williams, H., 2017. Wound Management should not be a pain. *British Journal of Community Nursing*. **22** (9), pp. 38-46.

14. Edwards, J., 2011. Managing wound pain in patients with burns using soft silicone dressing. *Wounds UK*. **7** (4), pp. 122-126.

15. Yıldırım, A.O., Tuncer, S.K., Bayram, Y., Eyi, Y.E., Eroğlu, M., ve Özenç, S., 2012. Acil serviste yara bakım ürünleri ve kullanımı. *TAF Preventive Medicine Bulletin*. **11** (6), pp. 773-778.

16. Ayhan, H., Şahin, İ., Taştan, S., Bilgen, E., ve Hatioğlu, S., 2009. Sağlık çalışanlarının yara bakımında vakum yardımlı kapama ve modern pansuman kullanımına ilişkin görüşleri. *Türk Plastik Rekonstrüktif ve Estetik Cerrahi Dergisi*. **17** (1), pp. 11-15.

Table 1: Distribution according to pain assessment (*n*=263)

		n	%
Pain	Present	250	95,1
	Not Present	13	4,9
	Total	**263**	**100**

Table 2: Distribution of pain characteristics (*n*=250)

Pain attributes		***n**	**%****
Time (*n*=552)	During dressing change	239	43,3
	During nighttime	112	20,3
	During biopsy and debridement	72	13,0
	During daily activities	56	10,1
	During rest	27	4,9
	During daytime	14	2,5
	After the dressing exchange	32	5,8
	Total	**552**	**100**
Spread (*n*=262)	On the wound	191	72,9
	Around the wound	71	27,1
	Total	**262**	**100**
Pain characteristics (*n*=374)	Throbbing	124	33,2
	Burning	90	24,1
	Aching	67	17,9
	Stabbing	33	8,8
	Sharp	32	8,6
	Itching	21	5,6
	Tingling	7	1,9
	Total	**374**	**100**

*Multiple responses were given.

** Percentage ratios were calculated based on the total number.

Table 3: Factors that increase and decrease the pain occurring during the dressing application

Factors that increase and decrease the pain		***n**	**%****
Factors that increase the pain (n=624)	Cleaning	175	28,0
	Applying the dressing	164	26,3
	Removing the bandage	157	25,2
	Touching	128	20,5
	Total	624	100
Factors that decrease the pain (n=347)	Short resting breaks	153	44,1
	Warm cleaning solutions	81	23,4
	Removing the dressing oneself	73	21,0
	Analgesic medicines	40	11,5
	Total	347	100

*Multiple responses were given.

** Percentage ratios were calculated based on the total number.

Table 4: Approaches that decrease the pain during the dressing application

Approaches that decrease the pain	**n***	**%**
Wetting and removing the dressing	23	67,7
Treating the wound tissue gently	6	17,7
Using analgesics	3	8,8
Taking short breaks	1	2,9
Being distracted during the dressing	1	2,9
Total	34	100

*Only 34 of the patients answered this question.

Figure 1. Severity of the dressing-related pain (n: 250)