Patients’ Experience of Advanced Wound Treatment–A Qualitative Study

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Abstract: Introduction. Each patient experiences wound treatment differently, and it is important to enhance the knowledge of the impact of the treatment to be able to individualize patient care.
Methods. This descriptive qualitative study aims to describe the experience of patients with wounds treated with advanced moist wound therapy (AMWT) and negative pressure wound therapy (NPWT). Data were collected from 15 diaries written by patients during their treatment, and analyzed with content analysis. Results. The results identified an overall theme of “threat to normality,” and 3 subcategories including “impact on daily life,” “manageability,” and “powerlessness.” Conclusion. While there were many similarities in the descriptions of the patients in the 2 groups, there also were unique features for each treatment group. For patients treated with AMWT, the main concern was pain. For patients treated with NPWT, the main concern was the optimal functioning of the machine. Patients undergoing wound treatment have different focuses, concerns, and needs related to treatment modality. It is important for health care personnel to carry this in mind to be able to individualize patient care.

Key words: advanced moist wound therapy, negative pressure wound therapy, qualitative research, quality of life, wound treatment

Over the past 40 years, advanced moist wound therapy (AMWT) has been generally accepted for wound treatment. The main advantage of AMWT is that epithelium migrates more easily in a wet environment, which gives better wound healing possibilities.

Previous studies on wound treatment and the effect on patient quality of life have shown that wound treatment can be stressful to the patient. Other studies have shown that patients with wounds experience pain, immobility, anxiety, frustration, and dependency on others, which can result in a lack of self-esteem for the patient, as well as restrictions in daily life.

The treatment options to facilitate AMWT have been limited to various occlusive wound dressings, which have evolved to employ more advanced technology. However, new complementary methods have been developed, one of which is combining AMWT with negative pressure wound therapy.
(NPWT). The frequency of NPWT in wound treatment is increasing rapidly. In the author’s search, numerous articles were found on the topic, but only a few describe the impact of treatment on patient quality of life. Two qualitative interview studies found that patients thought NPWT was stressful and had a negative impact on their daily life and organization of activities, specifically around dressing changes. Recent quantitative studies have concluded that NPWT may reduce the quality of life for some patients, and may result in more possible psychological effects, such as higher anxiety levels, for patients than AMWT. The aim of this study was to describe the experience of patients with wounds treated with AMWT and NPWT.

Method

This qualitative design study was part of a randomized clinical trial of NPWT. Fifteen patients kept diaries throughout their treatment, 8 who were treated with NPWT, and 7 who were treated with AMWT (control group). Outcome parameters included wound healing, cost effectiveness, and impact on quality of life. Patients had to meet the following criteria for inclusion: the wound had to be acute with duration < 6 weeks, and the participant had to be cognitively adequate and able to speak and write the Swedish language. Data were collected from the written patient diaries and analyzed with content analysis.

All patients who completed their diaries during the first year of recruitment were consecutively selected and included in this study. The in-depth analysis was conducted with diaries written by 7 patients treated with AMWT and by 8 patients treated with NPWT. All patients had wounds in the lower extremities, and their ages ranged from 41 to 91 years.

Treatment. The dressing used in the control group featured hydrofiber technology (Aquacel, ConvaTec Inc, Minneapolis, MN) with a transparent film dressing attached on top. The dressing was changed 3 times a week. The NPWT system used was a portable vacuum-assisted closure (VAC) device (ActiV.A.C., KCI Inc, San Antonio, TX). The dressings were changed 2 times a week. The health care personnel performing the wound treatment were registered nurses and nurse’s aides at Stockholm South General Hospital, Södersjukhuset, Stockholm, Sweden. The hospital had no formal requirement that personnel should have specialized education in wound care, so knowledge and competence varied and was dependent on the individual’s experience and interest.

Data collection and analysis. Data were collected as patients completed their wound treatment throughout 2011, from pre-printed diaries with 14 spreads, 1 for each day of treatment. The patients were asked to write, by hand, about their experience of the treatment, starting on the first day of treatment and then every day for 2 weeks, or less if the wound treatment was terminated earlier. The final material of the combined diaries consisted of 173 days of diary entries, ranging from 2 to 89 words each.

The text of the diaries was extracted and transcribed into a computerized document to get an overview of the material.

In this study, a technique inspired by Graneheim and Lundman was used to analyse the content. Initially, the text of the diaries was read repeatedly to obtain a sense of the whole. The diaries written by the patients treated with NPWT were analysed separately from the control group. Each time the material was read, a deeper understanding of the content was reached, and the analysis was transferred into a more latent approach. In both manifest and latent analysis, an interpretation is made, but in the latent analysis the interpretation is deeper and at another level of abstraction. The timeframe of the analysis was subjectively determined and completed by agreement within the research group. When a good sense of the content of the material was reached, units of meaning emerged and were labelled with codes. The research group organized the codes into 3 categories that reflected the central message of the text from both groups, and the underlying meaning of the categories was formulated into 1 main theme.

Ethical considerations. To achieve trustworthiness as defined by Graneheim and Lundman, the analytical process was performed in close collaboration with all members of the research group, and the results discussed among wound experts from the Swedish Society for Tissue Viability Nurses, as well as with hospital coworkers who were not involved in the care of study participants.
Diaries by 12 patients (6 AMWT and 6 NPWT) had been gathered in a pilot study, and these were the first to be analysed. During 2011, 3 additional patients were included in the larger study, and the research group also chose to include their diaries in the analysis. These additional diaries did not add new information to the analysis, but confirmed a sense of saturation of the material. All participants were given verbal and written information, and their written consent was obtained. Ethical approval was obtained by the local Ethics Committee of the Stockholm County Council (2008/2023-31).

Results

Content analysis identified 1 main theme and 3 categories common to both the AMWT and NPWT patient groups. The main theme was “threat to normality,” and the categories were: “impact on daily life,” “manageability,” and “powerlessness.” (Figure 1).

Main theme: Threat to normality. The wound itself and the necessity of having to go through a period of advanced wound treatment made living a “normal” life impossible for patients, regardless of treatment modality. A threat to normality was therefore identified as the main theme and represents the abstract description of the common experience by both patient groups.

Category 1: Impact on daily life. Patients treated with AMWT and NPWT said the wound and the wound treatment had a major impact on their daily life; however, the patients described unique aspects related to the treatment method that most affected daily life.

Nearly all of the patients treated with AMWT predominantly focused on pain during their treatment. Pain was the main factor that affected their daily life and this single issue was the most commonly discussed in the diaries. The experienced pain contributed to the patients’ feelings of fatigue and powerlessness. Pain during and after dressing changes was mentioned as being particularly stressful.

“Wound dressing changes, hurts like hell 1 hour after the change”

Patients also noted it was extraordinary and unexpected when the wound did not hurt. When patients felt an ease or absence of pain they interpreted it as a positive sign of wound healing, which made them feel hopeful and optimistic.

This focus on pain was almost totally absent in the group treated with NPWT. The major concern and contributor to a negative impact on daily life was a nonfunctioning NPWT machine. When the alarm of the machine automatically went on, patients experienced a threat to their safety and felt at risk of nonsuccessful treatment results.

“I am constantly afraid that the machine gets squeezed and is turned off - check it often.”

Several patients described difficulties coping with NPWT during nighttime, which included a fear that the machine could shut down if it fell to the floor, or that the tube could become pinched. Some patients reported they only slept on their back because of fear of machine problems. The risk and fear of tearing off the draining tube from the dressing while asleep were constantly present, resulting in sleep disturbances.

“Entangles me in the drainage tube”

The fact that the machine sounded alarms to signal low pressure, blockage, or other problems, also contributed to sleep disturbance. Not only did this disturb patients, but in some cases, their spouses as well. Patients treated with AMWT also described problems with disturbed sleep, but they related this to various problems with pain, inconvenience, and anxiety.

“Slept badly. Everything feels hopeless.”

Being attached to the NPWT machine and having to carry it around meant some discomfort and problems when performing tasks of daily living. One patient described difficulties when performing housework with the machine hanging around the neck. Another patient described a claustrophobic feeling being attached to the machine all day.
“Feels like being connected to an umbilical cord”

While the patients treated with NPWT predominantly experienced problems related to the machine, the patients treated with AMWT experienced a large amount of inconvenience related to their dressings. Not only did they report pain during and after dressing changes, but also problems with fit. Dressings sometimes slid around, exposing the wound and resulting in leaking exudate. This forced patients to handle the problem on their own at home, sometimes causing more problems.

“In the evening the bandage had slipped and left one third of the wound open, bad to deal with changing it myself:”

The necessity of handling these problems themselves also caused stress in the group treated with NPWT. A lack of comfort with handling the machine, and a lack of ability to solve problems related to it, contributed to increased anxiety and scepticism towards the treatment method.

Patients in both groups thought the actual dressing changes were not as troublesome as getting to the hospital to have them done, as problems with transportation, and not being able to make it to appointments on time, created a lot of stress. This problem was greater in the winter when public transportation and taxis had problems maneuvering in bad weather conditions.

Category 2: Manageability. Although both wound treatments had a major effect on daily life, there were ways of coping with these difficulties that made it more manageable. Factors considered crucial to advancing manageability among the patients treated with AMWT were identified as externally created confidence; those crucial to more manageability for patients treated with NPWT were identified as internally created confidence.

Patients treated with AMWT expressed a need for external support by health care personnel, as well as their families and friends, in order to build an externally created confidence to deal with their wound treatment. The general experience in this study was that the majority of the health care personnel were supportive and optimistic, which helped patients feel more at ease with their situation. Patients also felt confident that the personnel were committed and skilled, which made them feel secure and well taken care of. When feeling confident, the patients were more relaxed and optimistic about their wound and wound treatment. One patient explained that having the same nurse at every dressing change made him feel known and unique. The patient also stated it was comforting to know the nurse was familiar with the wound so a change would be noticed. One patient described external support by family as important for coping with the situation, especially during times at home between visits to the hospital for dressing changes. Confidence in the health care personnel and in the wound treatment itself, together with support by relatives, gave patients a sense of hope.

Patients treated with NPWT expressed a need to be confident with their own ability of coping with the treatment and their total situation, or internal confidence. When the dressing change was correctly performed and the machine was functioning as it should, the participants felt great confidence in the health care personnel and in the treatment. However, patients reported experiencing so many problems with the machine, that when it worked without problem it almost felt like a miracle.

“Absolutely fantastic, the machine still works.”

All patients treated with NPWT described how, when feeling confident in their own ability of coping with the situation, they became inventive and creative in handling technical issues associated with the machine. In other words, they were not afraid of trying to correct problems by fiddling with the machine and its functions.

“Among other things, I have been a specialist in production and in service management.”

Patients described getting information and demonstrations about the operation of the machine by health care personnel made them feel safe and secure, helping them to be creative and to better deal with the negative impact of the NPWT.

Category 3: Powerlessness. Some patients treated with AMWT or NPWT felt the stress caused by treatment was overwhelming, and their experience of the whole wound treatment process was negative. These patients did not feel confident because they felt they lacked control and the ability to manage their daily life in a positive way. The feeling of powerlessness negatively affected their well-being.

The patients treated with AMWT expressed feelings of physical and mental weakness. They reported that
the wound, as well as wound treatment involving numerous dressing changes, drained their strength and left them with a feeling of tremendous fatigue. Patients also said they were tired of the wound, of the treatment, of not being able to live a “normal” life, and of the feeling of being weak as human beings. Patients felt the wound lead to a social deterioration, furthering a feeling of inadequacy.

The patients treated with NPWT also described a feeling of weakness, but they related this to a feeling of abandonment. When the dressing change was executed poorly, causing the alarm of the machine to go off constantly, patients felt helpless. They did not know whom to contact for help. They felt abandoned, and as if the health care personnel did not care about them or their treatment.

“I talked openly about the scandalous problems at the beginning.”

The issue that the health care personnel had knowledge deficiencies was especially tough on the patients treated with NPWT at the beginning of the treatment and a problem they had to deal with throughout the entire treatment period. This was particularly stressful to several of the patients who initially experienced anxiety and hesitation towards the treatment.

“Contacted ward says wait until tomorrow, did not sleep much tonight because the alarm of the VAC went on continuously”

The feeling of being abandoned during this type of advanced treatment contributed to increased anxiety for the patients and led to distrust of the health care personnel involved. It also was perceived as a threat to both their physical and mental health. The hardship of being on their own, and not knowing how to handle the machine or how to get help, had a negative impact on the patients’ well-being and on their experience of the treatment as a whole.

Both groups described the impact health care personnel had on their experience of the treatment. This was particularly present in the descriptions by the group treated with NPWT, since the majority of these patients had major difficulties with the machine throughout the whole treatment period. The alarm of the machine went off constantly, which was interpreted by the patients as a lack of competence of the health care personnel performing the dressing changes. This perceived lack of competence included both handling the machine and its functions, as well as basic practical skills in the performing of the dressing changes. This contributed to the patients’ distrust in the personnel and a feeling of being unsafe with the care provided, leading to a negative impact on their well-being during the treatment period.

“The wound looks awful, like a crater.”

“Dressing change today. 2 nurses (new to me) were not used to do this. Did not feel good.”

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Sometimes the alarm of the machine went off inexplicably, and despite efforts by both health care personnel and product specialists from the manufacturer, the problem could not be detected. This led to distrust of the treatment itself and created doubts as to whether or not the treatment was an effective and appropriate choice for their type of wound.

While patients treated with NPWT focused solely on the everyday functioning of the machine, the majority of the patients treated with AMWT had major concerns for the future and for the impact their wounds would have on their lives. These patients were extremely focused on the progress of wound healing and the success of the treatment. This sentiment was not present in the descriptions by the patients treated with NPWT.

Prior to each dressing change, patients treated with AMWT were consumed with thoughts and worries of what was going to happen and how the wound would respond to the treatment. Anxiety about the future was so intense for a few patients that it created a feeling of despair. One patient was depressed by the appearance of the wound and interpreted this as poor progress of wound healing.

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“The wound looks awful, like a crater.”

“I feel almost apathetic.”

Discussion

This study provides descriptions of patients’ experience of treatment with AMWT and NPWT. There were many similarities between the 2 treatment groups in the descriptions, but also features unique to each treatment method. Patients treated with AMWT showed concerns regarding pain and worried about the future. They also followed the wound healing process through their own interpretations regarding progress and success. Patients treated with NPWT had 1 major concern: the optimal everyday functioning of the NPWT.
machine and issues related to achieving a properly functioning machine.

All patients, irrespective of method used, experienced their wound treatment as having a major impact on their daily life. This is supported by previous studies that demonstrated wound treatment has an effect on quality of life. The most troublesome problem for the patients treated with NPWT was being connected to, and having to carry around, the machine all day. This, together with a fear of the machine not working properly, contributed to a feeling that NPWT was a threat to normality and to patients not being able to live a “normal” life. This is also seen in other patients dependent on medical devices for optimal health: a constant fear that the device will not function, and a simultaneous feeling of being dependent upon the treatment device. The increased level of anxiety among patients treated with NPWT has previously been shown, indicating the importance of greater awareness of this effect of NPWT treatment. To address this issue, the information and patient education provided should be adjusted and individualized, with the goal of making the patient feel more secure and confident in handling the machine at home. One key issue regarding the patient’s feelings of manageability while receiving treatment with NPWT was to know where to turn for help and support, if necessary. An organizational suggestion would be that 1 inpatient ward of the department be responsible for the care and treatment of these patients after office hours, or to organize a system of on-call personnel.

Pain during wound treatment was first evaluated and recognized during the 1990’s and is now a well-known problem in wound treatment. The experience of pain was different in the 2 treatment groups. It is worth noticing that the group treated with NPWT did not mention pain as a major problem, as has been suggested in previous research. Perhaps NPWT as a treatment method may in fact ease the pain during the treatment, or the patient’s focus on the machine overshadows the experience of pain, or that this pain possibly could be managed by an individualized choice of wound filler.

This study shows that the patients perceived lack of knowledge of health care personnel performing the dressing changes, particularly patients treated with NPWT, contributed to distrust of the health care personnel and created a sense of helplessness.

Regarding the treatment with NPWT, the correct functioning of a medical device is not solely the responsibility of health care personnel—the manufacturers developing and distributing the devices are also responsible. The question of quality and functionality arises in this study since nearly all patients treated with NPWT had machines in their homes that did not function adequately. It seems unlikely that the problem would be solely a result of poorly performed dressing changes. Since there is no evidence of differences in treatment effect between different products, manufacturers producing NPWT devices should focus on more user-friendly dressing solutions. The NPWT dressing change should be easy to do correctly and difficult to do incorrectly. The consequences of treatment with NPWT when the machine is not functioning properly could mean substantial problems with an increased incidence of wound complications.

The strength of choosing diaries as the data collection method is that it enables the possibility of receiving the patient’s experience continuously throughout the treatment period. Although the rationale for using diaries is sound, there are methodological issues and problems. Limitations, such as poor data quality and noncompliance by patients, are known problems and can decrease the reliability of the measurement. To avoid this limitation, the method of repetitive reminding presented by Broderick et al was used. Another limitation with using diaries is that it may give a scarce amount of text material, in contrast to more extensive data collection methods, such as interviews. However, the authors think the content of the diaries reflects the core issues for the patients during their treatment process. The authors also think the amount of material from the diaries was satisfactory, since the researchers achieved a sense of

**Key Points**

- The AMWT group expressed concerns regarding pain and concern about the future.
- The NPWT group mainly expressed concern with the everyday functioning of the machine.
- Choosing diaries as a data collection method enable the possibility of receiving the patient’s experience continuously throughout the treatment period.
saturation with their understanding of the material as proposed by Starin and Svensson.¹²

Conclusions

Patients undergoing wound treatment have different focuses, concerns, and needs related to treatment modality. It is important for health care personnel to take this into consideration and to individualize care. For patients treated with AMWT the focus should be on pain relief and giving the patient feedback on the progress of wound healing. For patients treated with NPWT, information and education of the functioning of the machine, for both health care personal and the patient, are essential to optimize the machine's function and ensure the patient has the required knowledge and capacity to handle the machine with confidence when on their own at home.

References