J Wound Ostomy Continence Nurs. 2014;41(6):1-4.
Published by Lippincott Williams & Wilkins

WOUND CARE

Education Project to Improve Venous Stasis Self-management Knowledge

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ABSTRACT

PURPOSE: The purpose of this study was to evaluate patients' knowledge of chronic venous disease, venous ulcer occurrence and recurrence, and self-care at baseline, immediately following, 2, and 9 weeks after an educational intervention.

SUBJECTS AND SETTING: The study sample comprised 30 patients diagnosed with venous ulcers. The research setting was an outpatient facility specializing in wound care located in South Florida; the educational intervention occurred in subjects' homes.

DESIGN: Single group before and after research design.

METHODS: Patients diagnosed with a first-time venous ulcer were assessed regarding their disease and self-care knowledge. Assessments were completed at baseline, immediately following an educational intervention, and during 2- and 9-week follow-up home visits. In addition to evaluating patient knowledge, wound healing (evaluated by the treating nurse or reported by the patient) was assessed at 2- and 9-week follow-up and wound recurrence was assessed at 9-week follow-up.

RESULTS: The educational intervention resulted in a statistically significant increase in knowledge scores ($P = .002$). This change persisted when patients were evaluated during 2- and 9-week follow-up visits ($P = .003$). In addition, half of patients who completed the educational intervention remained free of recurrence when evaluated at 9 weeks.

CONCLUSION: Results suggest that patient education related to venous ulcers improves knowledge regarding the disease process and self-care and reduces recurrence when measured at 9 weeks postintervention.

KEY WORDS: compliance with treatment, compression therapy, improving patient health, increased knowledge of self-care activities, quality of life, reducing healthcare costs, reduction of recurrence of venous ulcers.

INTRODUCTION

The incidence of venous ulcers in the general population is relatively low at 0.6 to 1.6 individuals per 1000.[1] The occurrence of venous ulcers increases significantly with aging; the incidence rate of venous ulcers among patients 85 years of age and older ranges between 10 and 30 per 1000 persons.[1] The increased incidence of venous ulcers associated with age is of notable concern given current demographic shifts in the United States. Over the course of the next 10 years, it is estimated that 78 million Americans will reach the age of 65 years.[2] Advances in medical science and technology will further increase the number of individuals living past the age of 85 years, likely increasing the prevalence of individuals with venous ulcers.[2]

Venous ulcers exert a deleterious impact on patient well-being and health-related quality of life.[3] They have been noted to be more painful and disabling for patients than arterial ulcers. Venous ulcers have a high recurrence rate creating ongoing challenges for maintaining patient health. Venous ulcers recur in as many as 80% of all patients following initial occurrence. Healthcare costs associated with venous ulcers are approximately $1 billion per year. Venous ulcers require, on average, 80 days to heal, and recurrent venous ulcers average 117 days to closure.[4] Thus, reducing the rate of the recurrence of venous ulcers could have significant implications for reducing the costs of care associated with this condition while improving physical health and health-related quality of life.

Prevention of an initial venous ulcer is considered the most effective means of preventing recurrence, but predicting which patients will develop an ulcer remains difficult.[3,5] As a result, care tends to focus on reducing recurrence.[5,6] Approximately 70% of venous ulcers can be prevented via compression therapy and compliance with recommendations for wound care.[5] Adherence to specific aspects of self-care can hinder wound healing and increase the likelihood of recurrence.[6] Factors associated with an

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Conflicts of interest and source of funding: None declared.

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DOI: 10.1097/WON.0000000000000088

increased risk for recurrence include lack of patient education, lack of agreement between patient and provider regarding the need for treatment, and the inability of the patient to engage in self-care activities.[6] Clinicians and researchers note that patient education focusing on preventing recurrence is often the most overlooked feature of care.[7]

The purpose of this study was to evaluate patients' knowledge of chronic venous disease, venous ulcers, and self-care at baseline, immediately following, 2, and 9 weeks after an educational intervention. Specific aims for this study were: (1) increase participant knowledge of disease and self-care activities following an educational intervention and (2) reduce venous ulcer recurrence.

METHODS

A single-group before-after research design guided data collection and analysis. The target population was persons diagnosed with a first-time venous ulcer. Disease and self-care knowledge were assessed at baseline, immediately following, and at 2 and 9 weeks after an educational intervention. Scores from each of the measurement periods were compared. Wound healing and venous ulcer recurrence were assessed at 9 weeks.

The research setting was an outpatient facility specializing in wound care located in South Florida; the educational intervention occurred in subjects' homes. After diagnosis of the patient via a primary care provider, patients were referred to the outpatient facility that provided evidence-based wound care designed to reduce recovery time and cost. Potential subjects were recruited by staff nurses working for an outpatient facility providing care for patients with venous ulcers. Participant recruitment took place between January 1 and 22, 2013. Patients who expressed willingness to participate in the study were contacted by the principal investigator (A.G.) directly or by telephone. Data were collected during home visits scheduled at times convenient for the participants. Research procedures were reviewed and approved by Chatham University's Institutional Review Board; informed consent was obtained from all subjects.

Instrument

The instrument used for evaluating patient knowledge was constructed specifically for this investigation by the principal investigator. The Checklist for Patient Learning included 2 subscales: disease process (6 items) and self-care activities (7 items). The checklist was reviewed for content validity by both wound care experts and nurse educators to assess its utility in evaluating patient knowledge. Following expert review, the checklist was revised and a final version was created for use in this study. No other methods were used to evaluate the validity or reliability of this instrument.

The Checklist for Patient Learning was administered by the principal investigator. Each positive response was assigned a score of 1 and a negative response was scored a value of 0. The cumulative score of the instrument ranged from 0 to 13; higher scores indicate greater knowledge. Patients were also asked about wound healing and venous ulcer recurrence during a 9-week follow-up visit.

Intervention and Outcome Measures

The educational intervention lasted approximately 45 minutes; it included a brochure and handout covering pertinent aspects of disease development and progression as well as an overview of self-care activities needed to facilitate healing and reduce recurrence. In order to ensure consistency in the delivery of the intervention, all educational programs were provided by the principal investigator.

Outcome measures were: (1) scores on the Checklist for Patient Learning measured at baseline, immediately following the intervention, and at 2 and 9 weeks follow-up, (2) wound healing as reported by participants at 2- and 9-week follow-up, and (3) wound recurrence as reported by participants at 9-week follow-up. Wound healing was assessed by the nurse providing care and reported to the principal investigator by the participant. Wound healing was operationally defined as a reduction in wound size noted by the nurse and reported to the principal investigator by participants. Wound recurrence was operationally defined as occurrence of another wound at the same site.

Study Procedures

Data collection occurred in 4 phases: (1) baseline, (2) immediately following the educational intervention, (3) at 2 weeks postintervention, and (4) at 9 weeks postintervention. The educational intervention was completed for each subject immediately after informed consent was obtained. Follow-up telephone calls to assess patient knowledge, wound healing, and recurrence were completed at 2 and 9 weeks follow-up. Follow-up telephone calls took, on average, 30 minutes to complete.

DATA ANALYSIS

Differences in Checklist scores for the preintervention, postintervention, and 2- and 9-week follow-up assessments were analyzed using unpaired *t* tests. Descriptive statistics were also used for each of the subscales on the Checklist (eg, disease knowledge and self-care knowledge). Unpaired *t* tests were also used to evaluate differences in mean scores of the 2 subscales (disease knowledge and self-care knowledge) in order to determine if changes in patient knowledge were significant.

RESULTS

The study sample consisted of 30 patients with venous ulcers referred to our outpatient facility for wound care.

TABLE 1.

Demographic Data for Venous Ulcer Patients (n = 30)

Variable	Data
Gender	
Female	17 (57%)
Male	13 (43%)
Age, y	
55-60	3 (10%)
61-65	14 (47%)
>65	13 (43%)
Race	
Caucasian	21 (70%)
African American	4 (13%)
Hispanic	3 (10%)
Other	2 (7%)
Comorbid conditions (as noted in the patient chart)	
Yes	27 (90%)
No	3 (10%)

Thirty-five patients were approached about participation in the study; 1 declined owing to concerns that participation would require too much time, 1 withdrew during the intervention, 2 were transferred to long-term care during the follow-up period, and 1 expired. Subjects had a mean age of 65.4 ± 1.22 years (mean ± SD) and 57% were female. Demographic data for the study sample are summarized in Table 1.

Statistically significant differences were found when baseline mean scores were compared to scores immediately following intervention, and scores measured at 2 and 9 weeks (Table 2). Ninety-three percent of wounds were assessed as healing at 2 weeks, and 80% were assessed as healing at 9 weeks. The reported venous ulcer recurrence rate at 9 weeks was 50%.

DISCUSSION

Study findings indicate that statistically significant gains in knowledge were made immediately following the educational intervention and these differences were maintained at 2- and 9-week follow-up. Healing had begun in 28 (93%) of patients by 2-week follow-up. This rate declined to 24 patients (80%) by 9-week follow-up. In addition, 50% of participants experienced recurrence of their venous ulcers by 9 weeks. This finding is lower than that of Edwards and colleagues,[6] who reported that 80% of patients with venous ulcers experience a recurrence over the course of their initial treatment.

While patient education is thought to be an important element for preventing venous ulcer recurrence, other

TABLE 2.

Descriptive Statistics and Unpaired *t* Tests for Evaluating Patient Knowledge

	Cumulative Score (13 Items)					Disease Subscale Score (6 Items)					Self-Care Knowledge Subscale Score (7 Items)				
	Mean	SD	Median	*t*	*P*	Mean	SD	Median	*t*	*P*	Mean	SD	Median	*t*	*P*
Preintervention	4.33	0.221	4.00	…	…	1.75	1.56	2.0	…	…	2.21	0.976	2.0	…	…
Postintervention	12.3	0.432	12.0	−3.21	0.765	0.002[a]	5.88	0.432	6.0	−2.32	0.994	0.003[a]	6.92	0.223	7.0	−3.65	0.933	0.002[a]
2-week follow-up	11.9	0.245	12.0	−0.439	1.43	0.003[a]	4.89	0.942	5.0	−4.16	1.48	0.014[a]	6.64	0.985	7.0	−4.67	1.55	0.014[a]
9-week follow-up	11.1	0.567	11.0	−0.776	2.21	0.003[a]	4.01	1.32	4.0	−4.89	2.40	0.025[a]	6.44	1.22	6.5	−4.78	1.97	0.016[a]

[a]Statistically significant difference.

TABLE 3.

Reported Wound Healing and Recurrence Rates

Timeframe	Yes	No
Wound healing at 2 wks	28 (93%)	2 (7%)
Wound healing at 9 wks	24 (80%)	6 (20%)
Recurrence at 9 wks	15 (50%)	15 (50%)

variables also influence wound healing such as compliance and pain.[15] Additional research is needed to determine the interactions among the multiple factors that influence wound healing and recurrence among patients with venous ulcers (Table 3). [AQ02]

LIMITATIONS

The study used a single group, and a control or comparison group would strengthen our ability to draw conclusions about the influence of the educational intervention on wound healing and recurrence. In addition, I was unable to control for comorbid conditions that are likely to have influenced wound healing and recurrence. Additional efforts beyond evaluating the content validity of the Checklist for Patient Learning were not completed. Finally, participants self-reported wound healing and recurrence.

CONCLUSION

Findings from this study suggest that a one-on-one educational intervention increased knowledge of chronic venous disease and self-care in patients with a first-time venous ulcer. Although generalization of study findings to the larger population of patients with venous ulcers is not possible, the research supports ongoing efforts to employ educational interventions to improve outcomes for patients with venous ulcers.

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AUTHOR QUERIES

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