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Leg and Foot Ulcers

Nursing Care in Malmö, Sweden

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Questionnaires concerning nursing care of leg and foot ulcer patients in three major care-giving sectors of the national health service, namely the Department of Dermatology, general hospital wards/clinics, and primary care, have been analysed. The overall response rate was 88% (primary care: 100%). Forms regarding 193 patients with leg ulcers and 64 patients with foot ulcers were analysed. Substantial differences in nursing care were noted between the three sectors. In 55% of the leg ulcers and 45% of the foot ulcers fibrin slough was present in the ulcer. Black, necrotic tissue was present in 8% of the leg ulcers and 22% of the foot ulcers. Profuse ulcer-exudation was most commonly reported for leg ulcer patients treated at the Department of Dermatology, while the majority of foot ulcers had only a mild exudation. Frequency of dressing changes varied between 1.4 times/week for leg ulcers at the Department of Dermatology and 9.2 times/week (foot ulcers 11.6) at general hospital clinics. Local wound dressings were exclusively chosen by physicians at the Department of Dermatology, mainly by physicians at general hospital clinics, and equally often by physicians and nurses in primary care. Time since last evaluation of the ulcer by a physician varied. At the general hospital clinics, 89% of the patients with leg ulcers had been seen by a physician within the last 2-month period. At the Department of Dermatology, 89% and in primary care 61% of the patients were examined within this period. 11% of the patients in primary care had never consulted a physician for their ulcers. The number of different wound dressings is limited to 3–4 at the Department of Dermatology. In primary care, 24 types of wound dressings were used, with no distinct preference. At general hospital clinics/wards, saline gauze was the predominant dressing. Compression therapy for patients with venous or mixed venous/arterial disorders was given in 100% of the leg ulcer patients at the Department of Dermatology, in 62% of the patients in primary care, and in 64% of the patients at general hospital clinics/wards. A review of the nursing care routines might bring advantages both for patients with leg and foot ulcers, for the nurses and for the health service, nationally. Substantial cost savings can be achieved. ***Key words: Ulcer appearance; Dressing changes; Compression therapy.***

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The management of patients with chronic ulcers of the leg and foot is a major and resource consuming health care problem (1, 2). Chronic ulcers of the lower limb seem to increase exponentially with age (2). With a growing population of elderly persons, an increase in the number of foot and leg ulcers can thus be foreseen. Careful planning for future management of these patients is important.

The aim of this study was to survey ulcer-related problems, nursing care routines and interaction between physician and nurse in the care of leg and foot ulcer patients in the city of Malmö with 232,908 inhabitants.

Differences in management of the ulcers between three major care giving sectors, namely the Department of Dermatology, the general hospital clinics/wards, and primary care are presented. Demographic data are presented and discussed in a separate paper (3).

MATERIAL AND METHODS

A questionnaire consisting of 14 questions, including patient data, ulcer-related problems, nursing care, collaboration between physician and nurse, local wound treatment, frequency of dressing changes and use of compression therapy, was distributed to all medical units in Malmö. Before distribution, a meeting with nurses in primary care was held to test the forms. Before the distribution of the form all chief physicians and head nurses were informed by letter. The study period was 6 weeks in March–April 1990. After two reminders, the response rate was 88% (primary care 100%). Forms for 193 patients with 402 leg ulcers and 64 patients with 112 foot ulcers could be evaluated. The median patient age was 79.5 years, and sex ratio 3:1 (women/men). The patients have been cared for in three different care-giving sectors of the health service, viz.:

1. the Department of Dermatology (23% of the patients),
2. general hospital clinics including homes for the elderly (28%),
3. primary care (49%).

RESULTS

Ulcer-related problems

Subjective evaluation concerning presence of fibrin slough and/or black necrotic tissue is shown in Table I. 56% of the leg ulcers and 45% of the foot ulcers were covered with a yellow fibrin slough. Black, necrotic tissue was found in 22% of the foot ulcers and in 8% of the leg ulcers. Remaining ulcers were reported as red and granulating. No relation to any specific dressing was found. Subjectively judged exudation of the ulcers was reported as profuse in 41% of the leg ulcer patients treated at the Department of Dermatology. Profuse exudation was reported in only 11% of the foot ulcers.

Management of ulcers

The frequencies of dressing changes for foot and leg ulcers in the different care-giving sectors are given in Table II. The frequency for leg ulcers at the Dermatology Department was 1.4, in primary care 3.8 and at hospital clinics, 9.2 times weekly. Foot ulcers were dressed 11.6 times/week in hospital and 5.9 times/week in primary care.

Evaluation of ulcer by physician

Approximately 90% of all patients treated for chronic ulcers of the lower limb both at the Dermatology Department and at

Table I. *Presence of fibrin and necrotic tissue; figures represent percentage of ulcers*

	Leg ulcers (%)	Foot ulcers (%)
Yellow fibrin slough	56	45
Black, necrotic tissue	8	22
Red, granulating	36	33
Total	100	100

general hospital clinics/wards had been examined by a physician within the last 2 months prior to the study. In primary care, 61% of the leg ulcers and 89% of the foot ulcers were examined within this period. 11% of the patients with leg and foot ulcers treated in primary care had never been examined by a physician for the ulcer. Time intervals are given in Table III.

Selection of local wound dressings

Choice of dressing was made by the physician in 100% of the cases at the Dermatology Department. At hospital clinics/wards the local wound dressings were chosen by a physician in 60–70% of the cases. In primary care, it was equally common for the physician as for the nurse to select local treatment. Details are presented in Table IV.

Dressing changes

Responsibility for changing dressings varies greatly between the two extremes. At the Department of Dermatology, all dressing changes were performed by or under the supervision of nurses, while at general hospital clinics/wards, foot ulcers were almost exclusively dressed by assistants. Nurses had a high degree of involvement in dressing changes in all three care-giving sectors (Table V).

Local wound dressings

A large variety of dressings were used for leg ulcers, and the routines differed significantly between the three care-giving sectors. The Department of Dermatology had very strict standards, and used only three different local dressings routinely, namely as inner layer for double layer bandage Zinkaband® N (zinc paste bandage) or Paste Stocking (zinc paste stocking) and as hydrocolloid occlusive dressing DuoDERM®. Double-layer bandage was complemented with an outer compression layer of Porelast or acrylastic adhesive bandage, while Duoderm® was complemented with Lohmann/Dauer® bandage. In primary care, 24 different wound dressings or combinations were used. At hospital clinics/wards, saline-gauze was the most commonly used dressing.

The most frequent dressing, overall for foot ulcers was wet saline gauze.

Table II. *Management of the ulcers; number of dressing changes per week*

	Leg ulcers	Foot ulcers
Department of Dermatology	1.4	–
Hospital	9.2	11.6
Primary care	3.8	5.9

Table III. *Latest ulcer examination by physician*

Figures in per cent are given for examination within 1, 2 months, 2 years and never.

	<1 month		<2 months		<2 years		Never	
	Leg	Foot	Leg	Foot	Leg	Foot	Leg	Foot
Dept of Dermatol.	59	–	88	–	100	–	–	–
Hospital	86	100	89	–	100	–	–	–
Primary care	45	81	61	89	89	89	11	11

Compression therapy

Compression therapy was used in 100% of the patients with leg ulcers of venous or mixed venous/arterial etiology at the Department of Dermatology, in 64% of the cases at general hospital clinics/wards, and in 62% of the cases in primary care. Support stockings were only occasionally used by 2 patients at the Department of Dermatology and by 2 patients in primary care.

DISCUSSION

This study revealed remarkable differences in nursing care between the three care-giving sectors of the health care service in Malmö. In a separate study (3), we found a frequent uncertainty among nurses and assistants as to the etiology of the ulcers, which might explain the differing principles for ulcer care. Only 61% of the ulcer patients in primary care had been examined by a physician within the last 2 months prior to the study, as compared with 89% at the Department of Dermatology. A more regular physician's evaluation of the underlying diseases, the patient's overall condition, and the healing process would be recommendable. The diagnosis must be carefully discussed with and communicated to all staff for choice of appropriate therapy. The differences can be partly explained by the different types of ulcers treated at different clinics.

Ulcer dressings were selected exclusively by the physician at the Dermatology Department, and often at general hospital wards/clinics as well. In primary care, this responsibility is split

Table IV. *Selection of local wound dressing; figures are percentages of all the patients*

	Dept of Dermatol.		Hospital		Primary care	
	Leg	Foot	Leg	Foot	Leg	Foot
Physician	100	–	62	63	52	65
Nurse	–	–	31	27	37	30
Auxiliary	–	–	5	10	11	5
Patient	–	–	2	–	–	–
Total	100		100	100	100	100

Table V. *Responsibility for ulcer dressing changes; figures are percentages of all the patients*

	Nurse		Auxiliary		Nurse/aux.		Patient	
	Leg	Foot	Leg	Foot	Leg	Foot	Leg	Foot
Dept of Dermatol.	100	–	–	–	–	–	–	–
Hospital	29	–	43	94	15	4	13	2
Primary care	15	8	16	10	70	82	–	–

between physicians, nurses and auxiliary nurses. The dressings were applied by or under supervision of nurses in all the patients at the Dermatology Department, while this was commonly performed by auxiliary nurses at the hospital. In primary care the dressing routines were shared between nurses and auxiliaries.

In 55% of the leg ulcers and 45% of the foot ulcers, fibrin slough was present. Modern occlusive dressing known to dissolve fibrin (4, 5), were not widely used outside the Dermatology Department. Enzymatic debridement was used in only 2 cases. Profuse exudation from the ulcers is a problem often associated with leg ulcers. Profuse exudation was most often reported at the Dermatology Department. This may be due to a selection of more intransigent wounds referred to this Department. Another possible explanation could be the less frequent dressing changes performed at the Department of Dermatology.

The number of dressing changes per week showed remarkable differences between the three major care-giving sectors. Frequencies ranged between the two extremes, from 1.4 times/week for leg ulcers at the Dermatology Department to 9.2 times/week at general hospital clinics/wards. Foot ulcers were dressed 11.6 times/week in hospital. Part of the explanation is that foot ulcers have to be inspected more often. The common recommendation for venous leg ulcers is to leave the ulcers without inspection with efficient compression therapy for at least a week. The differences in frequency of dressing changes for leg ulcer patients, however, ranged from 1.4 times/week at the Dermatology Department to 3.8 times/week in primary care and to 9.2 times/week at general hospital clinics/wards are therefore the more surprising. Frequency of dressing changes naturally depends also on the choice of local dressing.

At general hospital units leg ulcers were generally of a shorter duration, less exudating and with fewer ulcers/patient than leg ulcers treated at the Dermatology Department (3). This would seem to indicate a possibility to make fewer dressing changes, in contrast to what was actually observed. Presence of infected ulcers, or complicated arterial ulcers and skin-grafts might however to some extent explain the frequent gauze-dressing in hospital. Nonetheless, even if strict medical requirements are followed, it must be possible to reduce the number of dressing changes in many cases. Modern wound-care principles (moist environment) state the importance of avoiding too frequent mechanical intervention and reduction of temperature (6). Occlusive dressings are also reported to be beneficial in reducing wound infections (7, 8, 9). By reducing the number of dressing changes, substantial cost savings could also be achieved.

Nurses in primary care have a difficult working situation that requires a great deal of experimenting and improvization. The extensive number of dressings used in primary care is probably a result of the individual nurse's preference and search for an optimal solution for each patient. Experience from the Department of Dermatology shows that a limitation to a few local wound dressings is possible. We can see no good reason why such a limitation should not be possible in primary care. In fact a more strict dressing policy could facilitate the evaluation of the healing process and probably improve healing process.

Compression therapy, so consequently practised in leg-ulcer care at the Department of Dermatology, should also be more consequently practised both in primary care and in general hospital clinics. Encouraging patients to accept compression therapy might be helped by involving a physician, since older patients in primary care often refuse compression therapy when suggested by nurses.

In summary, this study has revealed major differences in wound care, hardly motivated by medical reasons. It is quite obvious that greater involvement by physicians in the diagnosis and stricter rules for local wound care and compression therapy should improve treatment and reduce costs.

REFERENCES

1. Eriksson G. Local treatment of venous leg ulcers. Acta Chir Scand 1988; Suppl 544: 47–52.
2. Hansson C. Studies on leg and foot ulcers. Acta Dermatato-venereol (Stockh) 1988; Suppl 136: 7–13.
3. Lindholm C, Bjellerup M, Christensen OB, Zederfeldt B. A demographic survey of leg and foot ulcer patients in a defined population. Acta Derm Venereol (Stockh) 1992; 72: 227–230.
4. Ryan TJ. Granulation tissue under DuoDERM: Role of physical factors in fibrinolysis and angiogenesis. Fibrinolysis and Angiogenesis in Wound Healing, 2nd Int Forum, San Antonio, Texas, 1987.
5. Lydon MJ, Hutchinson JJ, Rippon M, et al. Dissolution of wound coagulum and promotion of granulation tissue under DuoDERM. Wounds 1989; 1: 95–106.
6. Alvarez OM, Mertz PM, Eaglestein WH. The effect of occlusive dressing on collagen synthesis and reepithelialization in superficial wounds. J Surg Res 1983; 35: 142–148.
7. Eriksson G, Eklund A-E, Kallings LO. The clinical significance of bacterial growth in venous leg ulcers. Scand J Infect Dis 1984; 16: 175–180.
8. Mertz PM, Marshall DA, Eaglestein WH. Occlusive wound dressings to prevent bacterial invasion and wound infection. J Am Acad Dermatol 1985;12: 662–668.
9. Hutchinson JJ, Lawrence JC. Wound infection under occlusive dressings. J Hospital Infections 1991; 17: 83–94.