

Leg Ulceration in Portugal: Prevalence and Clinical History

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Objective. To determine the prevalence and clinical history of leg ulceration in Portugal.

Design. Case identification of patients through health professionals providing care for patients with leg ulceration.

Setting. Clinical areas in hospital, community centres and patients' homes.

Participants. Patients registered with five health centres within Lisbon suffering from ulceration of the leg receiving care from hospital and community staff.

Methods. Patients identified by health care professionals working in one area of Lisbon were asked to complete a simple proforma on each patient with leg ulceration. Patients were followed up prospectively to determine healing rates during this baseline period of evaluation.

Results. In total 263 patients were identified in a population of 186,000 (total prevalence 1.41 (95%CI 1.25–1.59) per 1000 population). The prevalence was similar between men and women (1.3 and 1.46 per 1000, respectively). As expected this was highly age dependent being most common in the patients aged over 80 years (6.5 and 4.9 per 1000, respectively).

Median duration of ulceration was 18 months, with 158/240 (66%) present for longer than 1 year, and 40 (17%) for longer than 5 years. The cause of ulceration was unknown to the health professional treating the patient in 86 (33%) patients. Diagnosis of aetiology was usually on the basis of clinical examination alone (145, 56%), with 21 (8%) having undergone ankle to brachial pressure index (ABPI) measurements and a further eight undergoing either echo-Doppler or arteriography. Most care was provided by community services, with 145 (55%) treated in health centres and 77 (29%) treated in the patient's home.

Conclusions. The prevalence of chronic leg ulceration is similar to other reported studies in western Europe, and indicates that approximately 14,000 patients suffer from leg ulceration at any one time in Portugal. Leg ulceration causes a considerable burden on both hospital and community services.

Keywords: Leg ulceration; Prevalence; Service delivery; Portugal; Healing.

Introduction

Leg ulceration is a chronic wound on the leg or foot which fails to heal. While there are over 40 reported causes of leg ulceration, most ulcers in western populations are related to vascular diseases such as venous disease and peripheral arterial disease.^{1,2}

Prevalence studies of chronic leg ulceration were first carried out in the mid 1980s when two studies attempted to estimate the prevalence of leg ulceration in the UK. The two population estimates were 1.48 per 1000 and 1.79 per 1000 population, giving an estimated number of patients in the UK of between 80 and 100,000.^{3,4} Studies from other parts of Europe and

other westernised countries have found similar results.^{5–7}

An epidemiological survey undertaken in 1996, involving 8243 consecutive attendances to the Portuguese National Health Service, showed a prevalence of chronic venous insufficiency of 20% in men and 40% in women.⁸ The prevalence of chronic venous ulcer (active or healed) in this study was 3.2% in men and 3.9% in women. According to data from 1992, it is estimated that in Portugal around 1.5% of out-patient appointments are due to venous disease of the lower legs.⁹

The present study was undertaken to estimate the prevalence of leg ulceration in the Unit B2 of Sub-Região de Saúde, in Lisbon, during 2 weeks from 3rd to 17th December 2001. The patients were those registered with five health centres with a total population of 186,000.

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Methods

Study design

This study used case identification through health professionals as the method of estimating prevalence of patients suffering from a current leg ulcer.³ In this study cases were identified by health professionals working within the hospitals and community services which provide care for the patients in this area. Patients who were attending health facilities for care, but who were not registered with the health centres were excluded from the analysis.

Case ascertainment

Leg ulceration was defined as 'an open wound on the leg'. Questionnaires were mailed to the health professional groups with a covering letter asking them to complete a form for each patient they were aware of with leg ulceration. The questionnaire asked for key information on all patients they had contact with who were suffering from a leg ulcer. The questionnaire included key demographic details, together with information about who was currently treating the patient. For patients in hospital care questionnaires were sent to designated heads of out patients departments and wards where patients were likely to be treated. Hospital departments treating patients with leg ulcers were visited by the research nurse to identify the patients in their care. Follow-up visits were undertaken to specific clinical areas that did not respond to the initial questionnaire. All nurses within the health centres co-operated with this study, as did the clinical specialties caring for patients within the hospital system.

A register of patients was compiled using the information, and information collated on a central

database and analysed appropriately using SPSS. The principal analysis was the estimate of age and gender specific prevalence. This was determined by dividing the numbers of patients identified by the total numbers of patients registered within the five health centres for each 10-year age band, between the ages of 60 and 80. All patients under 60 were grouped together as were those over 80, in line with previous studies.^{3,4} Other information collected from the proforma included ulcer details and ulcer history, together with information on ulcer aetiology, decisions on care and provider of care.

Results

In total 263 patients were identified by the health professionals in this study. The majority of patients (187/263, 57%) were identified by nurses caring for patients within the community services, with a further 55 (29%) identified by nurses in hospital clinics. Of the total number of patients age was determined in 256, and gender in 259. Mean (SD) age of the patients was 70.2 (13.1) years with 42% men and 58% women.

The age and gender specific prevalence rates are given in Table 1. Of the 258 patients who had age and gender present the crude prevalence rates from the resident population registered in the five health centres was 1.30/1000 in men and 1.46/1000 in women. The overall population prevalence with all 263 patients was 1.41 (95%CI 1.25–1.59) per 1000 population.

Ulcer details

Most patients with ulceration suffered from unilateral disease (216, 83%), with little difference between side of ulceration (151 right leg, 153 left leg). The ulcers were chronic in nature, with a median (interquartile range) ulcer duration of 18 (5–36) months. Whilst we did not set a minimum ulcer duration in this study only 13 of the 240 with ulcer duration recorded (5%) had an ulcer present for less than 4 weeks. In all, 158 (66%) had an ulcer present for longer than 1 year of whom 40 (17%) had the ulcer present for longer than 5 years. The ulcer duration varied slightly according to gender and age, Table 2. There were a higher proportion of men suffering ulceration for longer than 5 years (26 versus 11%, $p=0.002$), though overall there was no difference in median ulcer duration (men=24 months versus women=18 months, $p=0.22$).

The underlying aetiology of the ulceration was

Table 1. Identification of patients by age and gender

	N	Population	Rate (per 1000)
Men			
<60 years	36	60,464	0.60
60–69 years	20	10,130	1.97
70–79 years	27	8305	3.25
80+ years	24	3690	6.50
Total	107	82,589	1.30
Women			
<60 years	22	66,143	0.33
60–69 years	32	13,985	2.29
70–79 years	53	14,024	3.78
80+ years	44	8967	4.91
Total	151	103,119	1.46
Population	263	185,708	1.41

Table 2. Duration of ulceration by gender and age

Ulcer duration	<1 year (%)	1–5 years (%)	5+ years (%)
Men	32 (33)	39 (41)	25 (26)
Women	48 (34)	78 (55)	15 (11)
<60 years	13 (27)	25 (52)	10 (21)
60–69 years	16 (32)	21 (42)	13 (26)
70–79 years	29 (38)	40 (52)	8 (10)
80+ years	23 (36)	32 (50)	9 (14)

given in only 171/263 (65%), with practitioners being unaware of the aetiology in the remaining 92 (35%), **Table 3**. Of those where the aetiology was given, 137 (80%) were considered to be venous in origin, 8 (5%) were arterial and 26 (15%) mixed venous/arterial ulceration. Although these diagnoses were given, mostly this was determined from clinical examination alone (114, 67%). Only 21 (9%) had undergone ankle to brachial pressure index (ABPI) measurements and a further eight had undergone either echo-Doppler (7) or arteriography (1). Clearly, while a cause of the ulceration may have been given, this may have been open to error, without the use of non-invasive investigations.

Factors associated with poor healing

The patients were more mobile than expected with only 19 (7%) being bed or chair bound and 154 (59%) being able to walk without a mobility aid, **Table 4**. Of the total, 25 (10%) had a completely fixed ankle with a further 116 (45%) having some limitation of ankle mobility. Pain from the ulcer was present in 231/259 (89%), with 48 (19%) considering it to be continuous.

Provision of health services

There was a mismatch between the health professionals who prescribed care and those that undertook it, **Table 5**. Whilst prescribing care was often undertaken by doctors (dermatologists 25%, GPs 14% and surgeons 10%), the majority of care was

Table 3. Identified cause of ulceration and methods to determine aetiology

Type of ulcer (n=263)	N (%)
Venous	137 (52)
Arterial	8 (3)
Mixed	26 (10)
Not known	92 (35)
How diagnosed	
Clinical alone	114/171 (67)
ABPI	21/171 (12)
Other	8/171 (5)
Not known	36/171 (21)

Table 4. Factors affecting outcomes of treatment: levels of mobility and pain in patients with ulceration

	N (%)
Mobility (n=261)	
Bed	6 (2)
Chair	13 (5)
Walks with aid	88 (34)
Walks freely	154 (59)
Ankle movement (n=260)	
Fixed	25 (10)
Limited	116 (45)
No limitations	119 (46)
Pain (n=259)	
A lot, continuous	48 (19)
Quite a bit	68 (26)
Some days	75 (29)
Little pain	40 (15)
No pain	28 (11)

undertaken by nurses in health centres (57%) or at home (22%).

A high proportion (80%) had been to see a doctor for specialist opinion for their ulcer, most frequently a dermatologist (124, 48%) and/or vascular surgeon (85, 33%). Patients were most often treated in health centres (55%), with a further 13% attending out patient services, **Table 6**. Just six patients (2%) were being treated on the wards of the hospitals. The remaining 77 (29%) were treated at home. The frequency of treatment varied, most commonly being three times per week (44%), though 21 (9%) were treated on a daily basis. The average (SD) number of treatments was 3.0 (1.6) visits per week.

Table 7 gives the frequency of product usage in the 263 patients. There were a wide variety of topical agents and cleansers used, though most patients had their ulcer cleansed using saline (88.2%). Gauze was by the far the most frequent dressing used (88.2%) on the wound, with hydrocolloids next (21.7%). Relatively small numbers were given more modern wound

Table 5. Main health professional treating the patient and prescriber of treatment

Main person treating the patient (n=260)	N (%)
Ward nurse	6 (2)
Out patient nurse	28 (11)
Clinic centre nurse	148 (57)
Home care nurse	58 (22)
GP	8 (3)
Dermatologist	1 (0.4)
Surgeon	2 (0.8)
Other	9 (3)
Prescriber of treatment (n=261)	
Ward nurse	4 (2)
Out patient nurse	12 (5)
Clinic centre nurse	68 (26)
Home care nurse	42 (16)
GP	37 (14)
Dermatologist	66 (25)
Surgeon	27 (10)
Other	5 (2)

Table 6. Service usage in patients with leg ulceration: specialist referral, place of treatment and number of treatments per week

	N (%)
Specialist (n=260)	
Ever seen a specialist?	208 (80)
Vascular	85 (33)
Plastic surgeon	8 (3)
General surgeon	15 (6)
Dermatologist	124 (48)
Other	4 (2)
Where treated? (n=262)	
Patient's home	77 (29)
Health centre	145 (55)
Hospital out-patient	34 (13)
Inpatient (ward)	6 (2)
How many treatments per week? (n=247)	
One	33 (13)
Two	65 (26)
Three	110 (44)
Four	6 (2)
Five	7 (3)
Six	5 (2)
Seven	21 (9)

dressings such as foams (7.2%) and alginates (5.7%). Elastic compression was rarely used in these patients (11.8%), despite most ulcers being considered venous in origin. Instead, there was a heavy reliance on crepe and cotton wool bandages.

In all healing data were evaluated in 271 ulcers. The difference between this number and the total number

Table 7. Cleansers, topical agents, dressings and bandages used in 263 patients

	N (%)
Cleansers/topical agents	
Saline	232 (88.2)
Paraffin cream	54 (20.5)
Sodium hypochlorite	27 (10.3)
Topical antibiotics	10 (3.8)
Biafine	9 (3.4)
Soap	8 (3.0)
Zinc oxide	7 (2.7)
Hydrogen peroxide	6 (2.3)
Corticosteroids	2 (0.8)
Ether	2 (0.8)
Other creams	1 (0.4)
Water	1 (0.4)
Chlorhexidine	1 (0.4)
Dressings	
Gauze	232 (88.2)
Hydrocolloids	57 (21.7)
Paraffin tulle	41 (15.6)
Hydrogels	28 (10.6)
Foams	19 (7.2)
Alginates	15 (5.7)
Charcoal	12 (4.6)
NA Dressings	8 (3.0)
Collagen	1 (0.4)
Bandages	
Crepe	142 (54.0)
Cotton wool	55 (20.9)
Iodine paste bandage	49 (18.6)
Zinc bandage	35 (13.3)
Elastic bandage	31 (11.8)

of patients in the ascertainment was due to bilateral ulceration, new patients presenting during the follow-up, and patients who did not enter the follow-up period. Of the total number of ulcers 88 healed during follow-up, with 48 lost to follow-up. The crude healing rate was (88/271, 32.5%) over the 24 weeks of follow-up. Using the derived Kaplan Meier curve the expected healing rate after 12 weeks was 25.7% rising to 42.0% following 24 weeks of care, Fig. 1. Of the 88 who healed, 11 (12.5%) recurred during the period of the study.

Discussion

This study has highlighted a number of issues about leg ulceration in Portugal. It has shown that the prevalence of leg ulceration is approximately 1.41 patients per thousand. This would translate to approximately 14,000 patients suffering from ulceration at any time, with a further 42,000 with healed ulceration at risk of recurrence.³ It has also emphasised the chronic nature of the problem, with the majority of patients having suffered for longer than 1 year. Despite most patients being diagnosed with venous ulceration, the majority of these were on the basis of clinical diagnosis alone. It has been shown that taking ankle pulses alone is a poor predictor of the presence of arterial disease in patients with ulceration.¹⁰

Leg ulceration clearly has a major impact on the health services of Portugal. Most patients have seen a specialist doctor for their ulceration, and many patients are treated within the hospital system. However, the greatest burden is on the community services, with most patients being seen within health centres or the patients' own home. Patients are also seen on a regular basis, on average three times per week. There was a heavy reliance on gauze as the primary dressing for patients, and just 11.8% of patients were receiving elastic compression, despite over 80% of ulcers considered as venous in origin.

This study is the first part of a programme to develop leg ulcer services in Lisbon. The new provision of services is based on the Riverside model of care.^{11,12} This model places particular attention on the appropriate assessment of patients including the measurement of ankle brachial pressure index (ABPI), compression bandaging and appropriate referral to specialist hospital services. These changes in practice are achieved through improved education of nursing staff, greater access to compression bandages, and guidelines for practice. A recent study in South West London indicated that following 8 years of a similar service, prevalence of ulceration was approximately

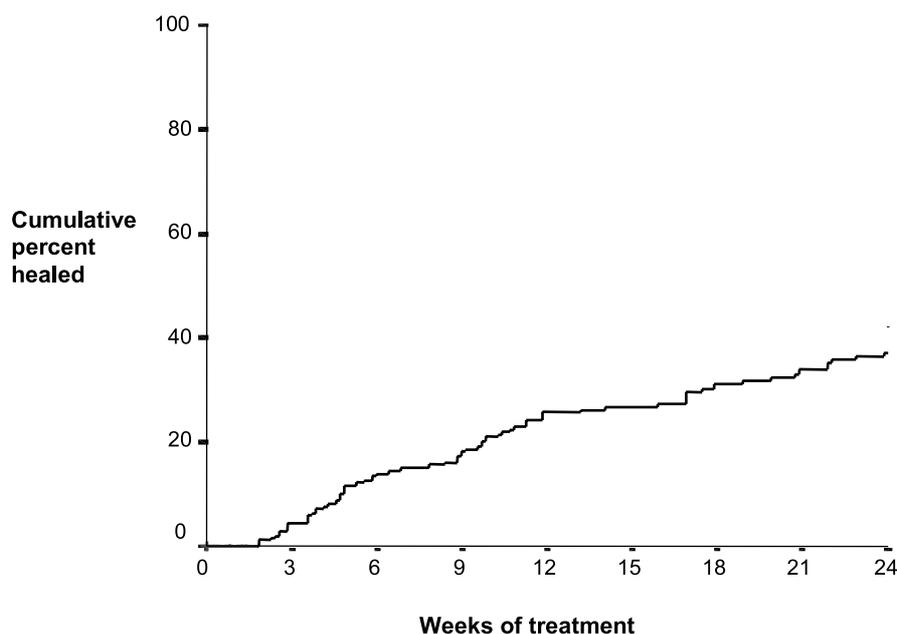


Fig. 1. Kaplan Meier plot (one minus survival) of time to complete healing.

one third of that predicted by studies undertaken in the 1980's.¹³ In Portugal we appear to have a similar prevalence to those early studies in the UK, which may indicate a baseline or worse case scenario for chronic leg ulceration. We anticipate that by adopting this system of care it may be possible to improve outcomes so that we may reduce the burden of leg ulceration to both patients and the health service. Using the estimated prevalence reduction in the UK would reduce the numbers of patients to less than one hundred in this area of Lisbon, and under 5000 in Portugal as a whole. However, this is a long-term aim of the project, which may take several years to achieve. The investigation of this multi faceted intervention will form the basis of future evaluations.

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