Original Papers

Prevalence and aetiology of leg ulcers in Ireland

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Abstract

Background The prevalence of leg ulcer disease in Ireland has been poorly documented.

Aims This study aimed to investigate the aetiology and prevalence of leg ulcers in one health district.

Methods All patients receiving healthcare for an active leg ulcer in the Mid-Western Health Board (MWHB) region of Ireland (population: 317,069) were identified in a defined two-month period. A cross-sectional survey of all healthcare workers providing care to patients with leg ulceration was carried out. Patients with leg ulcers of uncertain cause were invited for follow-up assessment to establish the underlying cause.

Results There were 389 patients with leg ulcers with a mean (standard deviation [SD]) age of 72.3 (11.1) years. The prevalence was 0.12% but it was 1.03% in patients aged 70 years and over. Women were twice as likely to be affected. Venous disease accounted for 81% of ulcers, and arterial disease for 16.3%, while ulceration due to diabetic neuropathy and rheumatoid vasculitis was unusual.

Conclusion Leg ulcers are an important source of morbidity in our ageing population. Effective treatment programmes could diminish the impact of this debilitating disease on the health service. (Ir J Med Sci 2000; 169:110-112)

Introduction

Leg ulceration is a significant problem in the community. The prevalence in the population is reported as between 0.1% and 0.3%, the elderly being most affected.[1-7] Risk factors include venous disease and, to a lesser extent, arterial disease.[6-10] Precise aetiological classification is difficult as many are multifactorial in origin. Nonetheless, a working diagnosis needs to be established in the clinical setting to guide treatment.[11]

In Ireland, precise information on the prevalence and aetiology of leg ulcers is lacking.[12] Such information is important in an ageing society. We set out to establish the prevalence of leg ulcers in the MWHB region, which has a defined urban and rural population of 317,069 and has a similar age-sex distribution to the national profile.[13-17] A further aim was to determine the primary causes of ulceration in the study population.

Methods

Patient identification

A leg ulcer was defined as an open sore anywhere below the knee. All patients in the MWHB region who received treatment for leg ulcers in February or March 1998 were identified. These data were gathered from public health nurses, practice nurses, GPs and from nursing staff in geriatric, psychiatric and general hospitals and in nursing homes, as well as from patients known to be treating their own leg ulcers. Prior to the study, healthcare workers received written information on the project and multidisciplinary study groups were established to discuss research content and to pilot the study questionnaire.

Data collection

A pro forma was completed for each patient by the primary carer. Throughout the study period a research nurse was in regular contact with carers and hospitals to respond to queries and encourage comprehensive data collection. Strenuous efforts were made to avoid patient duplication. Ulcer aetiology was considered established if patients had been investigated before the study by a standard assessment procedure.[11] This requires measurement of an ankle:brachial pressure index (ABI) to evaluate arterial function. Patients who did not have ABI assessment were invited for a follow-up examination. Ulcers were classified using a standard system,[11] a modification of the method of Callam et al.[8]

Each patient underwent a full history and clinical examination. History included age, sex, medical history (especially diabetes and rheumatoid arthritis) and a history of previous vascular or orthopaedic surgery, of deep vein thrombosis and of intermittent claudication. Examination findings included the site of the ulcer, which was recorded diagrammatically,[9] recording of palpable arterial pedal pulses, and the ABI by Doppler ultrasound. This was considered objective evidence of arterial function. We did not attempt to evaluate venous function, deep or superficial, by objective methods.

A venous ulcer was diagnosed where skin changes associated with venous hypertension were observed and the ABI was >0.9, and where no other aetiological factor was suspected. Arterial ulcers were diagnosed when the ABI was <0.7. Mixed venous and arterial origins were noted when venous disease was clinically evident but the ABI was ≥0.7 and ≤0.9. Diabetic ulcers were diagnosed where clinical findings indicated diabetic neuropathy and ABI was >0.9. Possible malignant ulcers were biopsied. A rheumatoid cause was suspected where indices were normal but clinical examination indicated vasculitis.

To improve response rate, assessments were carried out

Table 1: Age-specific and age-standardised prevalence rates for leg ulcers in men and women.

Age (years)	Men n=137 n	Prevalence	Women* n=251 n	Prevalence	Total n=388 n	Prevalence
39 and under	2	0.02	1	0.01	3	0.02
40-49 years	6	0.3	9	0.4	15	0.4
50-59 years	14	0.9	15	1	29	1.0
60-69 years	31	2.6	41	3.5	72	3.0
70-79 years	56	7.1	112	11.3	168	9.4
80 and over	28	9.4	73	14	101	12.3
Crude prevalence rates		0.9		1.6		1.2
Age-standardised rates		0.95		1.35		1.18

* Age missing from one woman

Table 2: Aetiology of leg ulcers in limbs and patients.

Aetiology	Limbs n=399 n	(%)	Patients n=352 n	(%)
Venous	324	(81)	282	(80)
Arterial	38	(9.5)	37	(10.5)
Mixed*	27	(6.8)	25	(7.1)
Diabetic neuropathy	4	(1)	3	(0.9)
Malignancy	4	(1)	4	(1.1)
Rheumatoid	2	(0.5)	1	(0.3)

* Mixed venous and arterial disease

where convenient to patients. Patients were seen either at one of the two vascular/leg ulcer clinics in the MWHB region,[18] by the research nurse at local health centres or in the patient's home. A public health nurse or GP reviewed a small number of people.

Statistical analysis

The overall period prevalence of leg ulcers was described as a percentage of the total population of the MWHB region based on the 1996 Census data.[14-17] Prevalence was presented as per 1,000 of the male and female populations for the following age groups: less than 40 years, 40 to 79 years in 10-yearly intervals, and 80 years and over. Age-standardised rates for both men and women were calculated using the World Health Organisation's European Standard Population. Means (SDs) were calculated for continuous variables and proportions were used for categorical data.

Results

Response from care providers

A total of 98% (95/97) of public health nurses provided information on patients with leg ulcers. A total of 97% (146/150) of general practice surgeries and all nursing homes (n=44), general (n=4), geriatric (n=6) and psychiatric (n=2) hospitals took part. Leg ulcers were identified in 389 individuals (441 limbs) of whom 252 (65%) were women. Self-care was reported for 25 of these patients.

Prevalence

The prevalence of leg ulcers was 0.12% but rose to 1.03% in individuals aged 70 years and over. While the age-specific rates for those under 70 years of age were comparable between the sexes, women predominated in the older age groups (Table 1). This is reflected in the higher age-standardised prevalence rate for women. The mean age of all patients was 72.3 years (SD: 11.1), 73.4 years (SD: 10.7) for women and 70.5 years (11.6) for men.

Aetiology of leg ulcers

The primary cause of ulceration was already documented for 52.2% (203/389) of patients prior to the study. The remaining 186 patients were enrolled for follow-up assessment, 80.1% (149/186) of whom were willing or able to participate. The aetiology of ulceration in 37 patients could not be determined. Aetiology data for the remaining 352 patients (90.5%) or 399 limbs (bilateral in 47 patients) are presented in Table 2.

Venous disease accounted for 81% of ulcers. In 16.3% (65/399), ABI was ≤0.9. Primary diabetic and rheumatoid causes were rare. Almost 10% (34/352) of patients were known to be diabetic and 17.9% (63/352) had rheumatoid arthritis. Diabetes was present in 27.4% (17/62) of patients with arterial compromise compared to 5% (14/282) of patients with venous ulcers. The mean (SD) age of patients with ABI <0.7 was 76.5 (6.8) years which was slightly older than the mean age of 71.2 years for patients with venous disease alone.

Site of ulceration

The ulcer site was documented for 392 limbs (348 patients). Venous ulceration was generally confined to the gaiter region (Table 3), although isolated foot ulcers occurred in approximately 21% (68/320) of limbs with venous disease. Arterial lesions were located mainly in the lower extremities of the leg and all diabetic ulcers were limited to the foot.

Discussion

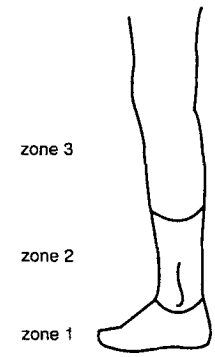
This is the first study to provide reliable data on the problem of leg ulceration in the Irish population. The true prevalence of leg ulcers of 0.12% may be underestimated, but the error is probably small as the response from all healthcare workers was excellent and every effort was made to include self-care patients through family doctors. Callam[19] has argued that surveys based on similar methodology cover large populations and thus provide the best estimate of the current workload in the treatment of leg ulceration.

A previous estimate of prevalence of 1.5% in Ireland was derived from a random, household consumer survey conducted by non-medical interviewers and based on self-diagnosis and was subject to error.[12] The prevalence of 0.12% compares well with an earlier prevalence of 0.15% in the Lothian and Forth Valley Health Districts in Scotland,[1] of 0.18% from Harrow[6], and of 0.11% from Australia.[7] Prevalence is highest in Sweden, where leg ulcers affect up to 0.3% of its population.[3-5] Nelzen et al[5] cited a prevalence rate of 0.3% for the Skaraborg population of Sweden and Faresjö et al[4] reported a crude prevalence of 0.25% for the city of Lindköping.

Table 3: Site of ulceration on limbs according to aetiology

Site	Venous n=320* n(%)	Arterial n=38 n(%)	Mixed§ n=24± n(%)	Other n=10 n(%)	Total n=392 n(%)
Zone 1 only	68 (21.3)	21 (55.3)	7 (29.2)	5 (50)	101 (25.8)
Zone 2 only	198 (61.9)	10 (26.3)	13 (54.2)	3 (30)	224 (57)
Zone 3 only	37 (11.6)	5 (13.2)	3 (12.5)	2 (20)	47 (12)
Zones 1&2	6 (1.9)	1 (2.6)	1 (4.2)	–	8 (2)
Zones 2&3	10 (3.1)	1 (2.6)	–	–	11 (2.8)
All zones	1 (0.3)	–	–	–	1 (0.3)

§(Mixed venous and arterial disease
*Missing data on 4 limbs (n=324)
±Missing data on 3 limbs (n=27)



This study included all leg ulcers. Some researchers limited their enquiry to chronic ulcers present for more than four weeks.[1,3,5,7] Callam et al[1] and Cornwall et al[6] also excluded patients with isolated foot ulcers from their study. In this study, only 15 patients had ulcers less than a month old but one-quarter had isolated foot ulcers. This suggests that crude leg ulcer prevalence in the MWHB region is lower than earlier findings in the UK.

Venous disease was assessed clinically and the competence of superficial and deep veins was not determined. Where photoplethysmography or bidirectional Doppler ultrasound were used, venous insufficiency was found in 57% of limbs compared to 81% noted here.[6,7,10] A total of 16% of limbs had arterial impairment (ABI ≤0.9) compared to 21% and 31% in the Lothian and Harrow regions, respectively.8,6 Almost 40% of ulcerated legs in Sweden had arterial disease and 22% of limbs had indices less than 0.7.[10] The age profile of leg ulcer patients in Skaraborg was older than Ireland which could explain the higher proportion of arterial disease.[10]

In conclusion, leg ulcers are common among the elderly in Ireland. The population over the age of 65 years is projected to grow by one-fifth over the next 10 years.[20,21] This could give rise to an increase in the numbers affected with leg ulceration. Corrective surgery for venous and arterial disease, together with the implementation of evidence-based care in clinical practice, may reduce the impact of this disease in the future.

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