

The moderately high hypercalcemia was probably a result of the presence of PTHrP because it shares the same N-terminal binding to the type 1 PTH receptor in the body as PTH, increasing bone osteoclastic activity and renal distal tubular calcium reabsorption. Bisphosphonates have been the main treatment for PTHrP-induced hypercalcemia because they inhibit osteoclast formation and their function.

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## RESEARCH STUDIES

### PRETIBIAL SKIN TEARS IN OLDER ADULTS: A 2-YEAR EPIDEMIOLOGICAL STUDY

*To the Editor:* Healing times for pretibial skin tears have not been reported in the community setting. Preexisting conditions such as diabetes mellitus, peripheral vascular disease, peripheral edema,<sup>1</sup> and corticosteroid use may impair healing,<sup>2</sup> although the association between diabetes mellitus and pretibial healing is unclear.<sup>3</sup>

The prime objective of this study was to identify the incidence, circumstances, and average healing time of pretibial skin tears in the community-dwelling older population and to identify potential risk factors associated with healing time.

## METHODS

All registered patients aged 65 and older (N = 2,401; 1,336 female, 1,065 male) living in the community who presented for treatment of skin tears of the pretibial area of the lower leg (excluding those with hospitalization for these injuries) to one rural primary care practice (17,507 total registered patients) in a small town in New Zealand over 2 years (January 1, 2006–December 31, 2007) were enrolled.

After informed consent was obtained, clinical information on history of diabetes mellitus, varicose veins, eczema, peripheral vascular disease, skin disease, visual impairment, dementia, cerebrovascular accident, osteoarthritis, replacement of hip or knee joint, mobility aid use, smoking, and medication use was collected using a standardized patient interview and medical record review. Date, season, location, and mechanism of injury were from the accident claim form available for all injured patients. Location (indoors at home, outdoors at home, or in a public place), height, weight, and body mass index were recorded; wounds were measured and categorized according to the Payne Martin classification;<sup>4</sup> and legs were assessed for pedal pulses, peripheral edema, senile purpura, and signs of venous insufficiency.

All wounds were cleaned and débrided, and flaps were held in place using adhesive strips. The practitioner or follow-up nurse determined dressing use. One of the authors (PK) or a trained nurse ascertained healing time in a standardized way<sup>4</sup> as the date of injury until the date of healing. Medical record reviewed ascertained infection and antibiotic use.

SPSS 15.0 (SPSS, Inc., Chicago, IL) was used for descriptive statistics and univariate analysis established associations with healing time. A multivariable regression model was developed in steps to establish the independence of variables, retaining those with  $P < .20$ . Beta statistic and level of significance are presented for the final multivariate model predicting healing time. Incidence was calculated using the age-appropriate practice population as the denominator in 5-year age groups. The Northern Y regional ethics committee approved the study in December 2005.

## RESULTS

All 120 eligible patients with pretibial skin tears participated. Average age was  $80 \pm 7$  (range 65–94); 93 (78%) were women. The 2-year incidence of skin tears (2.1% men, 4.6% women) increased with age from 1.1% (men) and 6.1% (women) for those aged 70 to 74 to 4% (men) and 30% (women) for those aged 85 and older. The average healing time was  $37 \pm 26$  days. One male patient receiving immunosuppressant therapy who had a healing time of 330 days was excluded. The occurrence of tears was lowest in the winter (11%), and most common in the summer (44%). An object falling on the leg or walking into an object that was out of the line of sight caused most injuries, whereas a fall caused the minority.

Univariate analysis showed that infection ( $P = .001$ ) was the only factor associated with a delay in healing, whereas injuries indoors at home ( $P = .07$ ) and the use of a walking aid ( $P = .08$ ) were nonsignificantly related to healing time (Table 1).

In the multivariable regression model, larger tear area ( $P = .005$ ) and infection ( $P = .001$ ) ( $n = 45$ ) were independently associated with longer healing time, whereas the use of aspirin or warfarin ( $n = 32$ , combined variable) was associated with shorter healing time ( $P = .02$ ), as were injuries occurring in the summer ( $n = 52$ ,  $P = .006$ ) or autumn ( $n = 26$ ,  $P = .04$ ).

## DISCUSSION

The study is the first to report complete capture of a primary care older population with pretibial skin tears. Most pretibial skin tears happen outside in the summer and take longer to heal than in people in residential care.<sup>4–6</sup> Older women are at particular risk, 30% of women aged 85 and older presenting over 2 years. There was a lack of ethnic diversity, and potential type II errors were probably due to small sample size. Infection, larger area of the tear, and springtime injury were identified as predicting slower healing. Vitamin D, integral to skin healing,<sup>7</sup> is at a nadir in springtime in New Zealand.<sup>8,9</sup> Postoperative wounds are more common in the spring in Finland.<sup>10</sup> It may be that healing is slower in spring because of a lack of vitamin D.

**Table 1. Factors Independently Related to Healing Time**

Factor	Mean Days to Heal	Beta Coefficient	Standard Error	P-Value
Tear area		0.000	0.000	.005
Infection	47	–0.359	0.105	.001
Accident in the home	43	–0.199	0.101	.07
Aspirin or warfarin	32	0.243	0.105	.02
Season				
Winter	27	–0.713	0.180	<.001
Autumn	36	–0.330	0.158	.04
Summer	37	–0.390	0.141	.006
Spring	47	0		

Regression analyses controlled for age, sex, type or class of tear, smoking status, use of a walking aid, and presence of peripheral edema.

Further research could examine dressings and elevation advice or preventive strategies.

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**Conflict of Interest:** The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.

This research was completed as part of a master's thesis at the University of Auckland. Time was self-funded (PK) and part of usual academic duties (NK). The primary care practice staff contributed their time without formal funding. The main results were presented at the 2009 Annual General Practice Research Retreat, Wellington, New Zealand.

**Author Contributions:** PK and NK conceived the study concept and design, interpreted the data, and prepared the manuscript. PK acquired the subjects and data. PK conducted the analysis.

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## CELIAC DISEASE IN OLDER BRAZILIANS

*To the Editor:* Celiac disease (CD) is a permanent autoimmune disorder triggered by the ingestion of gluten of wheat, rye and barley that can be recognized at any age. Manifestations of CD in older adults can be hidden, and a correct diagnosis is often not made.<sup>1</sup> People with CD have a high