High-risk foot care is necessary for people in residential care

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Article points

1. The overall resident population of nursing and care homes will continue to rise and between 6.5 % and 12 % of these subjects will have diabetes.
2. In this study all these subjects were identified as being at risk of developing a foot ulcer so there may be no role for annual foot assessment.
3. Ongoing training should be provided for care home staff on diabetic foot care, identifying potential foot problems and when to refer to the high-risk foot care team.
4. Links for rapid access to a high-risk foot care team for acute foot problems should be developed.

Key words

- Residential care
- Risk factors
- Immobility
- Ongoing training

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Diabetes guidelines in the UK recommend an annual foot assessment for all people with diabetes but it is difficult to achieve this in elderly people in 'residential care' subjects. Those living in residential care homes are in a supervised environment and many have relative immobility that could offer protection from foot ulcerations; however, owing to an increased prevalence of high-risk feet, residential care home staff should be educated about foot care in people with diabetes. In this article we present the magnitude of foot problems associated with diabetes in people residing in residential care homes in the Chorley and South Ribble area (Lancashire), with the ultimate aim to develop appropriate foot care provision for this vulnerable group.

An ageing population is a global phenomenon (US Census Bureau, 2002). In the UK, the largest percentage growth (5.9 %) in population in the year 2006 was for people aged 85 and over: growing by 69 000, reaching a record 1.2 million with the greatest rise being in the 100 years or over age group (National Statistics Online, 2007). In Chorley and South Ribble in 2005, National Statistics data estimated that 3.9 % of the population were aged 80 years or over (The Information Centre for health and social care, 2007). Although the majority of the UK ageing population is healthy, a small proportion needs residential care, either in a rest home or nursing home due to their age-associated conditions, and this number is increasing. It is estimated that 90 % of residential care home admissions are due to medical morbidity and associated disability, with more than 50 % of residents having dementia, stroke or other neurodegenerative diseases (Bowman et al, 2004).

A number of studies have shown that between 6.5 and 12 % of individuals residing in care homes have diabetes (Sherriff et al, 2000; Taylor and Hendra, 2000; Sinclair et al, 2001; Duffy and Craig, 2002; Shah et al, 2006). In 2001, the prevalence of diabetes in the 60 years and over age groups in England was estimated at 13.8 % (Yorkshire and Humber Public Health Observatory, 2007). NICE (2004) recommends ongoing annual foot assessment for all adults with diabetes to determine individual foot ulcer risk. NICE also recommends the need for extra vigilance in older people and those with visual impairment. Similarly, special arrangements should be made to provide foot screening and care of people with diabetes in nursing and

rest homes. People with increased risk should undergo review every 3–6 months, and those at high risk every 1–3 months.

It is estimated that overall, 76 % of people in residential care need help with their mobility or are immobile and have difficulty accessing services provided for the general population (Bowman et al, 2004). Foot care provision for people with diabetes in residential care in Chorley and South Ribble area is shared between the public and private sectors. Annual foot assessment is offered to all individuals with diabetes residing in residential care homes by NHS podiatry services, with ongoing review as necessary; however, a number of residents choose to access private podiatry for their ongoing review, accessing NHS podiatry should acute problems arise.

Study aims

The aim of this study was to assess the magnitude of foot problems associated with diabetes in people residing in residential care homes in the Chorley and South Ribble area with the ultimate aim to develop appropriate foot care provision for this vulnerable group.

Method

This was a prospective study, carried out over a 12-month period from 1 January to 31 December 2005, by a single podiatrist who was trained to perform diabetic foot screening. A list of registered residential care homes was obtained from the local Social Services Department. A letter was written and sent to each of the homes explaining the importance of diabetes annual foot assessment, and requesting they refer all of their patients with diabetes for assessment to be carried out by the local NHS podiatry department.

The residential care home medical records of all individuals were examined to confirm diabetes. Data were collected from the completed local standard diabetic annual foot assessment forms (Housley et al, 2006). In brief, they had enquiry on previous foot ulcers, eyesight, smoking status and symptoms of peripheral vascular disease. Clinical examination involved: palpation of foot pulses; testing for peripheral sensory neuropathy using 10g monofilament and Neurotip; examination for foot deformity; presence of callus, corns or nail problems; and examination of footwear. Following their risk assessment, individuals were identified as being at low, increased or high risk of developing a foot ulcer using predefined criteria (Housley et al, 2006). Those with dementia who lacked the cognitive ability to respond appropriately to sensory testing were grouped as having neuropathy.

Results

All 44 residential care homes operating in the Chorley and South Ribble area were contacted for the study and 13 nursing homes and 17 rest homes responded. Some of these have dual accreditation for both nursing and residential care. There were 90 people with diabetes residing in these 30 homes with a mean age of 84.2 ± 7.7 years, of whom 52 (58 %) were female. Data were not recorded for neuropathy in two people, ischaemia in one person, deformity in 12 individuals and risk category for one. Owing to coexisting dementia, it was felt that 27 individuals did not understand and therefore were unable to provide a reliable response to the neurological test. History of foot ulcers was not recorded in 13 people and diabetes treatment was not recorded for seven.

- Of the people with a record of diabetes treatment (n=83), oral hypoglycaemic agents were the main treatment in 44 (53 %), with 30 (36 %) controlled by diet alone and nine (11 %) using insulin.
- Of those with a complete record eight (9%) people had either current or a history of foot ulceration (n=70, history of foot ulcers was not recorded in 13 people and diabetes treatment was not recorded for seven.
- Fifty-four (86%) had sensory neuropathy (n=63; 27 individuals with co-existing dementia were not included).
- Fifty-seven (64 %) had ischaemia in the form of absent pedal pulses (n=89; data were not recorded for ischaemia in one individual).
- Thirty-four (44 %) had foot deformity (n=78; data were not recorded for deformity in 12 individuals; *Figure 1*).

Page points

1. A number of studies have shown that between 6.5 and 12 % of individuals residing in care homes have diabetes.
2. Special arrangements should be made to provide foot screening and care of people with diabetes in nursing and rest homes.
3. The aim of this study was to assess the magnitude of foot problems associated with diabetes in people residing in residential care homes in the Chorley and South Ribble area.
4. There were 90 people with diabetes residing in these 30 homes with a mean age of 84.2 ± 7.7 years, of which 52 (58 %) were female.

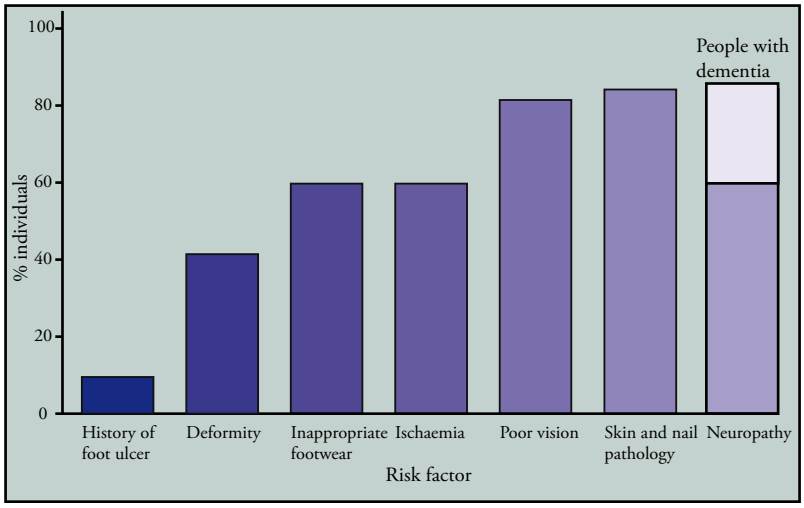

Figure 1. Analysis of various risk factors for ulceration. People with dementia who lacked the cognitive ability to respond appropriately to sensory testing were grouped as having neuropathy.

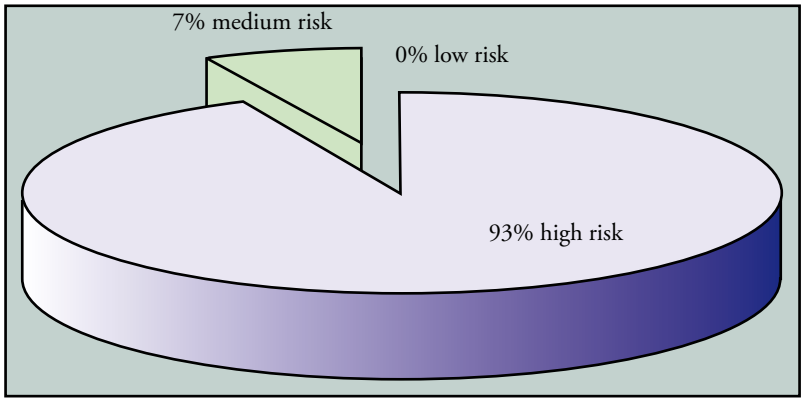

Figure 2. Risk category of sample population. All individuals were found to be at risk for foot ulceration. No people were found to be at low risk.

- Skin, nail (or both) pathology was present in 95%.
- A total of 64% were wearing inappropriate or ill-fitting footwear at the time of examination (*Figure 1*).
- We found that 83 (93 %) people were at high risk and the remaining six (7 %) at increased risk (n=89; data were not recorded for risk category for one individual). There were no individuals at low risk of developing a foot ulcer (*Figure 2*).

Discussion

Despite our effort, we could not obtain participation from all residential care homes; however, 68 % took part in the study and we believe it is a representative sample. Some data were missing as this study was performed as an audit rather than a research study. Owing to the higher mortality in this vulnerable group, it was felt not to be appropriate to re-visit and collect the missing data. This was a single observer study; however, continued professional development and regular updates on diabetes foot screening would help to ensure that assessment is carried out to a high standard.

In UK population studies, the prevalence of foot ulcers varies between 5.3 and 7.4 % (Walters et al, 1992; Kumar et al, 1994). Our study shows that current or a history of foot ulceration was 10 %, which is comparable to 12 % reported in institutionalised elderly people with a mean age of 80.9 years (Benbow et al, 1997). Other studies show a lifetime risk for people with diabetes developing a foot ulcer of between 12 and 25 % (Ramsey et al, 1999; Abbott et al, 2005).

Our study shows that all individuals with diabetes residing in nursing and residential care homes are at risk of developing a foot ulcer, and that this is due to a number of contributory risk factors. Advancing age is a risk factor partly due to the progressive nature of neuropathy, peripheral arterial disease and foot deformity. Altered foot biomechanics, combined with dysfunctional gait, result in abnormal pressure distribution on weight bearing. This in turn leads to increased foot pressure and friction, particularly over prominent metatarsal heads. It is possible that poor mobility, as seen in many elderly people residing in residential care homes, offers some degree of protection against diabetic foot ulcers; this is in marked contrast to immobility, which has a strong association with the development of decubitus heel ulcers.

In order to detect diabetic foot problems early, self-examination and self-monitoring through daily visual inspection of the feet is a key foot health message and should be encouraged (NICE, 2004). Visual impairment however, is common in older people, particularly in those individuals aged 75 years and over (Evans et al, 2002). Many people residing in residential care homes will be dependent on carers carrying this out for them due to their poor visual acuity,

Page points

1. In order to detect diabetic foot problems early, self-examination and self-monitoring through daily visual inspection of the feet is a key foot health message and should be encouraged.
2. Ill-fitting footwear can lead to abnormal shear and pressure distribution resulting in foot ulceration, particularly in people with neuropathy or ischaemia.
3. Our study suggests that as care home residents with diabetes are already at increased or high risk of developing foot ulceration, there may be no need for annual assessment, but this vulnerable group should have regular access to a podiatrist, at least every 3 months, and links for rapid access to a high-risk foot care team for acute foot problems should be developed.

immobility or coexisting dementia.

Ill-fitting footwear can lead to abnormal shear and pressure distribution resulting in foot ulceration, particularly in people with neuropathy or ischaemia. We found that over 60 % of individuals were wearing inappropriate or ill-fitting shoes. The presence of foot deformity contributes to difficulties in acquiring suitable over-the-counter footwear, as does poor patient mobility and their inability to access local services. Many elderly people residing in care homes wear slippers for most of the time as they rarely go out. Further study is needed to determine if slippers offer any less protection in the development of diabetic foot ulcers than conventional outdoor shoes worn indoors.

Conclusion

Our study suggests that as care home residents with diabetes are already at increased or high risk of developing foot ulceration and, rather than annual assessment, this vulnerable group should have regular access to a podiatrist, at least every 3 months, and links for rapid access to a high-risk foot care team for acute foot problems should be developed. Given the high-risk nature of the feet of these individuals and their dependence on others for foot care, ongoing training should be provided to care home staff on diabetic foot care, identifying potential foot problems and when to refer to the high-risk foot care team. As the turnover of care home staff is generally high, training should be ongoing and provided on a regular basis. ■

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