

PRACTICE OBSERVED

Practice Research

Hypothermia in the elderly: scope for prevention

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Abstract

Concern is growing about the number of elderly people dying of hypothermia. A register was compiled of patients over 75 on a general practitioner's list who were identified from their medical records as being at risk of hypothermia, having two or more established risk factors. Twenty four patients from this register were visited early in winter by a doctor to discuss how hypothermia could be prevented. They were then revisited during very cold weather to see whether they had made any changes. Several improvements to heating arrangements were noted, but the median temperature in the bedrooms of houses with no central heating was 10°C below the World Health Organisation's recommended temperature. In addition, eight patients were not visited daily.

Even with media publicity and visits from carers and a doctor, 17 of the 24 elderly people studied continued to live in an environment in which they were at risk of developing hypothermia.

Introduction

Increasing concern has been expressed at the number of elderly people dying in Britain from hypothermia. Collins suggested that Britain lags behind other Western countries in its welfare of elderly people in cold weather partly because of the considerable seasonal variation in mortality from stroke, myocardial infarction, and pneumonia.¹ Members of the primary care team are likely to be in

contact with elderly infirm patients and may be able to prevent hypothermia and disease related to cold temperatures.

The aims of this study were (a) to establish a register of elderly patients at risk of hypothermia based on information in their medical records; (b) to visit patients on the register at the start of the winter to identify factors in their environment that might predispose to hypothermia and be amenable to change; and (c) to revisit the patients during cold weather to see the extent to which appropriate preventive action had been taken.

Patients and methods

The records of all 94 patients aged over 75 on the list of one general practitioner were inspected. Patients were defined as being at risk of hypothermia if two or more risk factors were noted in their medical records. These risk factors had been identified previously as being serious chronic diseases (for example, stroke, arthritis, and diabetes); a history of falls or unsteadiness; malnourishment or known poor housing; use of sedatives or hypnotics or abuse of alcohol; senile dementia; a need to get up at night (nocturia or insomnia); severe immobility; and no regular caller.^{2,3}

Of the 94 patients, 38 were identified as having two or more risk factors. Of these, 24 were selected for study as they lived in two well defined geographical areas. Fourteen patients lived alone, six with a spouse, three with a sibling, and one with her unmarried daughter; 16 were women and eight men, and their median age was 81. Nine patients had two identifiable risk factors, and 15 had three or more. The most common risk factors were stroke, chronic chest disease, and a history of falls. Fourteen patients lived in Victorian terraced houses, seven in modern maisonettes, and three in modern ground floor flats. Fourteen had a telephone.

The patients were visited by one of us (CJO) in early December 1986. They were given advice about keeping warm and a booklet on hypothermia. Particular attention was given to heating in the bedroom as old people who become hypothermic are often found in their bedrooms.⁴ If appropriate, carers were contacted to emphasise the importance of daily visiting in very cold weather. During an extremely cold spell in January a further unannounced visit was made to see the extent to which each patient's environment had been altered to take account of the cold weather. In 23 cases the air temperature at floor level by the head of the patient's bed on the side from which he or she normally alighted was measured with an alcohol thermometer between 8 30 am and 11 30 am.

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Results

At the first visit only 10 patients claimed to have heard anything about hypothermia, but this had increased to 18 by the second visit. All patients seemed to have adequate heating in their living rooms. Heating in other parts of the house was often inadequate; table I shows details of the deficiencies and changes at the second visit. At the second visit seven of the 10 patients who initially had no bedroom heating had put some heating in the room, although this was generally a small electric fire, which we considered to be inadequate for the extreme cold. One patient had started to use a hot water bottle; none had electric blankets, but one patient had started to sleep downstairs in the main living room. No additional heating had been provided in the other unheated areas of the house, but the number of people shutting their windows at night had increased.

TABLE I—Number of patients with inadequate heating

Heating inadequacies	First visit	Second visit
No heating in bedroom	10	3
No heating in bathroom or toilet	16	16
No heating in corridor	18	18
Windows open at night	10	2
Inadequate clothing	1	1

Despite these improvements there was still evidence of insufficient heating. Table II shows the temperatures in the bedroom in the morning in 23 homes. In the three homes that had central heating the median temperature was 18°C (64°F), which is the World Health Organisation's recommended minimum temperature for rooms occupied by the young, old, and disabled.⁵ In homes without central heating the median temperature was 10°C lower. These temperature readings were taken at a time of extreme cold weather, the maximum outside air temperature on the days of the second visit being -0.1°C, -3.5°C, and -3.5°C.

TABLE II—Morning temperatures (°C) in bedroom

	Patients with central heating (n=3)	Patients without central heating (n=20)
Median	18	8
Range	17-21	2-14

At the first visit to the 14 patients who lived alone two were visited daily by a carer. By the second visit six were being visited daily, but eight still did not have a daily visit.

Discussion

In hypothermia the core body temperature falls to less than 35°C; the condition is potentially preventable. From 1% to 3% of all patients admitted to hospital during the winter months are found to be hypothermic,^{6,7} and the mortality of those with hypothermia is

from 30% to 80%.^{8,9} Hypothermia in the elderly is probably due to the inability of the aging thermoregulatory system to adapt to a cold environment in the presence of stresses such as a concurrent illness or fall. In addition to the incidence of hypothermia deaths from stroke, myocardial infarction, and pneumonia all increase in cold weather.¹

This study selected patients who were at particular risk of hypothermia. At the first visit several easily correctable environmental factors were identified that increased the patients' risk of hypothermia. The visits were carried out by a trainee general practitioner, but they could have been carried out by a health visitor or a social worker. The role of the health visitor in anticipatory geriatric care has been described in Wales, where the health visitor identified more problems in the elderly than the doctor, even though the doctor visited regularly.¹⁰

Several improvements were made in living conditions between the first and second visits, which occurred during December 1986 and January 1987. Around this time there was much publicity on radio and television and in the local papers about hypothermia. The influences effecting change were thus the media, the normal response to cold weather, and the advice and information given at the first visit. Despite the improvements that had been made, however, the median bedroom temperature in houses without central heating was still 10°C below the World Health Organisation's recommendations. Night time temperatures probably fell below those recorded during the day, even in the 21 bedrooms with heating, as in 17 of these the heating was on only when the patient was getting dressed and undressed and into and out of bed. This shows no significant improvement from the findings of Fox *et al.*¹¹

The elderly people in this study were visited more frequently during the cold spell than one month before, but one third (eight) were not visited regularly; of these, three did not have a telephone. These patients would therefore not have been found quickly had they become unwell.

This study shows that a group of elderly people, identified as being at risk of hypothermia, improved their home environment to reduce this risk after an educational visit from a doctor. Despite this visit and visits of other carers and intense media publicity, however, 17 of the 24 patients still lived in a potentially dangerous environment and eight were not visited daily.

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(Accepted 21 July 1987)