

A Study of Falls in the Elderly

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Abstract

A study of one hundred patients admitted with falls to the acute geriatric medical unit of the Greenwich District Hospital, London, between July 1981 and December 1981 revealed the following information. The female : male ratio for all ages was 2 : 1. The maximum age incidence was 75 - 80 years. Fifty four patients had been having recurrent falls over the preceeding six months prior to admission. The commonest risk factor was osteoarthritis (28%). The other important causative factors were mental confusion (15%), cerebrovascular accidents (10%), anaemia (16%) and cardiac causes (8%). The major complication of falls was fracture neck of femur (3%). Mortality rate of the series was (10%).

Falls in the elderly are merely a symptom of an underlying disorder which must be sought and treated whenever possible in order to prevent a progressive deterioration leading to loss of independence and death in certain instances.

Introduction

Falls are extremely common in old age. The causes are many and their outcome often serious. In 1981, Wild, Nayak & Issacs¹ stated that the incidence of unreported falls was 20 times that of reported falls. Of those who fall at home, less than 3% sustain an injury requiring medical attention.²

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Materials and Methods

One hundred patients who had sustained falls and were admitted to the acute geriatric medical unit of Greenwich District Hospital, London between July and December 1981 were studied. The majority of patients were admitted from the accident and emergency unit. The rest were referred either by general practitioners or the emergency bed service. The clinical examination was followed by routine haematological and biochemical investigations. The mental state was assessed by means of a simple questionnaire viz: age, date of birth, home address, time of day, year, recognition of person, name of hospital, name of Premier, date of first World War and simple addition.

Sex distribution of falls

The female : male ratio for all ages was 2 : 1 indicating higher female preponderance than other published surveys.

Table 1

Sex Distribution of Falls

Author(s)	Year	Female: Male ratio
Proudham & Evans	1981	1.4:1
Cook et al	1982	0.8:1
Present Series	1982	2.0:1

Age distribution

As shown in table 2, the youngest in the series was 65 years and the oldest 98 years. The maximum age incidence was 76 - 80 years. (Table 3).

Table 2
Age Distribution of Falls

Age	No. of cases
65 - 70	12
71 - 75	20
76 - 80	36
81 - 85	18
over 85	14

Table 3
Maximum Age Incidence of Falls

Author(s)	Maximum age incidence
Proudham & Evans	70 - 80
Cook et al	75 - 80
Present Series	76 - 80

Duration of falls

54% of patients had been having recurrent falls for over six months prior to admission.

Table 4

Duration of Falls

Duration in months	No. of cases
over 12	20
6 - 12	34
4 - 6	23
2 - 4	8
could not recall	15

Risk factors

The commonest risk factors were osteoarthritis, mental confusion, anaemia and cerebrovascular accidents.

Table 5

Risk Factors of Falls

Risk Factor	Percentage
Osteoarthritis	28
Mental confusion	15
Cerebrovascular accidents	10
Anaemia	10
Cardiac causes	8
Respiratory tract infections	8
Vertebro basilar insufficiency	6
Postural hypotension	5
Visual impairment	4
Accidental falls	4
Parkinsonism	2
Rheumatoid arthritis	2
Osteomalacia	1
Hypothyroidism	1

Complications and mortality

The most serious complication of this study was fracture neck of femur (3%). The mortality rate was 10%.

Table 6

Complications of Falls

Complication	No. of cases
Hypothermia	2
Fracture neck of femur	3
Bronchopneumonia	6
Dehydration	10
Bruising	12

Table 7

Mortality from Falls

Cause of Death	No. of patients
Myocardial infarction	3
Bronchopneumonia	3
Cerebrovascular accidents	4
Mortality rate	10%

Discussion

Falls are amongst the most frequent and puzzling problems of old age. In 1981, Wilde,

Nayak and Issacs said that the incidence of unreported falls was 20 times that of reported falls and of those who fall at home, less than 3% sustain injuries requires medical attention. The female : male ratio in this survey is higher than that reported by Grimley-Evans et al³, and Brocklehurst et al⁴. The maximum age incidence of our series is similar to that reported by the above authors.

Osteoarthrosis was the commonest risk factor in this study (28%). Of this group 5 patients had osteoarthritis affecting the hips while the rest had osteoarthritis of the knees. Home assessment carried out showed worn out carpets, poor lighting etc., while obesity and ill fitting shoes too predisposed to falls in these patients with unstable hips or knees. Physiotherapy and early mobilisation was encouraged. A few patients who were considered suitable were referred for hip and knee replacements. In patients where osteoarthritis caused obvious shortening of one lower limb, special boots with raised heels were provided. Prior to discharge, home assessment by occupational therapists performed safety modifications to home conditions.

Fifteen percent of patients were mentally confused with a mental score of 20%. In a few patients the confusion may have partly arisen from change of environment. Polypharmacy and injudicious prescribing of benzodiazepines, phenothiazines and barbiturates resulted in confusion in 5 patients. Two patients had senile dementia. One of the patients had frontal lobe secondaries from a bronchial carcinoma. In the remaining patients confusion arose from poor cerebral perfusion consequent of congestive cardiac failure.

Cerebrovascular accidents were the causative factor in 19 patients. In addition to hemiparesis, falls among these patients resulted from field defects such as hemianopia. Among the anaemic group of patients the haemoglobin level ranged between 5 - 7 g/100ml. These

patients had iron deficiency anaemia attributed to dietary inadequacy, hiatus hernia with peptic oesophagitis, diverticular disease of the colon and haemorrhage from duodenal ulcers in equal proportions.

Two patients admitted with falls had infarct had silent myocardial infarctions. Stroke — Adams attacks occurred in two others as a result of complete heart block and atrial fibrillation with slow ventricular response respectively. Moderate congestive cardiac failure was responsible for falls in the four patients, cardiac causes attributing to 8% of falls.

Acute exacerbation of chronic bronchitis and consequent cerebral hypoxia accounted for falls in of further 8% of patients. Vertebro basilar insufficiency complicating cervical spondylosis resulted in falls in 6%. These patients were supplied with firm cervical-collars.

Significant postural hypotension was encountered in 5%. All but one of these patients had a systolic drop of 30 - 40 mm Hg on standing. In two patients this resulted from autonomic neuropathy of diabetes mellitus. Hypotensives and diuretic therapy were causative in two other instances. One patient with the most remarkable postural hypotension of 80 mm Hg fall in the systolic B.P. on standing had Parkinson's disease and was diagnosed as Shy - Drager Syndrome.

Three patients with visual impairment had senile cataract while the fourth patient had glaucoma. Two previously undiagnosed cases of Parkinsonism were admitted with falls. The typical shuffling gait, rigidity, delay in correcting movements and the poor sense of balance result in the tendency to fall. One 86 year old housebound lady had clinical, biochemical and radiological evidence of osteomalacia improved considerably with high strength Calciferol tablets. An undiagnosed case of hypothyroidism and two females

with rheumatoid arthritis were also encountered in this study.

Falls are extremely common among the elderly. The decline or death of an elderly person who has previously managed to exist independently in the community can often be related to the occurrence of falls. A fall should be regarded as merely a symptom : there is invariably a reason for its occurrence and this must be sought and treated whenever possible in order to prevent a progressive deterioration leading to loss of independence and death in certain instances.

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