Falls in elderly people that result in facial injuries

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Summary Falls in elderly people are increasing. Injuries of the upper limb that result from a fall usually suggest that an outstretched hand was used to curb the fall. Conversely, maxillofacial injuries in elderly people may result from alterations in consciousness as a result of a pre-existing medical condition.

We investigated the nature of falls in an elderly population and compared two cohorts of patients—those presenting with maxillofacial injuries, and those with isolated upper limb injuries, and there were 25 patients in each cohort. Comprehensive personal data and medical history were recorded together with details of the fall.

We found a significant correlation between the nature of the injury and recollection of the event ($P < 0.01$).

Patients who sustain facial injuries are less likely to recall the event. This may be the result of the injury itself, but an underlying medical condition may have been responsible for the fall and should be excluded.

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1. Introduction
People are living longer in most Western countries. They are healthier, and have more active lifestyles. As a result they are increasingly exposed to the risk of injury. The annual occurrence of injuries in older people has been reported to be as high as 29%. Trauma is now the fifth most common cause of death in people over the age of 65 years, and old people are more likely to die of their injury than younger people.

There are substantial differences in the response to trauma between the old and the young. Compromise of the airway, reduction in lung compliance, change in cardiovascular homeostasis, and the prevalence of pre-existing disease all contribute to increase morbidity and mortality in patients with already limited physiological reserves.

The annual incidence of falls in those over the age of 65 years is 35—40%. There is also a seasonal variation as most falls occur in the winter. Many older people who fall do not ask for medical help. Of those who do, about 42% will need admission to hospital. Falls can indicate poor health and declining function. The mortality increases dramatically with age in both sexes and in all ethnic groups, and falls account for 70% of accidental deaths in people aged 75 or over. Falls are commoner in nursing homes and hospitals than in the community, and 10—25% of residents in nursing homes have a serious fall each year. Annual incidence in community studies varies considerably, ranging from 217 to 630/1000 persons at risk. Although they are in a minority, recurrent fallers contribute substantially to the total number of episodes recorded.

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falling increases with the increasing number of falls.\textsuperscript{10}

To our knowledge there are relatively few studies that have reported maxillofacial injuries sustained as a result of falls in elderly people. Gerbino et al.\textsuperscript{11} found that 56\% of maxillofacial injuries in old people over a 10-year period were caused by falls. The site most commonly injured was the middle third of the face and nasal bones were commonly fractured in older people than in younger adults. Management of elderly patients may be complicated by both associated injuries and underlying medical problems. This may also account for their longer median length of hospital stay.\textsuperscript{12} However, the principles of treatment, the outcomes, and the complications do not differ between young and old.\textsuperscript{11} Rehman and Edmondson concluded that most facial injuries in older people can be treated conservatively unless the patient has functional problems.\textsuperscript{5}

These results are also supported by those of another study which found that 40\% of elderly patients were not operated on, compared with 9.5\% of a control group.\textsuperscript{11}

We performed a prospective pilot study of falls in elderly people, and compared two groups of patients—those with maxillofacial injuries, and those with isolated upper limb injuries. We were interested to see whether maxillofacial injuries were more likely to be the result of pre-existing medical conditions, associated with alterations in levels of consciousness, compared with conscious falls when the patients extend their arms in an attempt to protect themselves as they fall.

\section{Patients and methods}

Twenty-five patients with maxillofacial injuries sustained from falls and resulting in referral to a specialist, and 25 patients with upper limb injuries from falls were selected for this study. Personal data and medical histories were recorded together with details (if known) about the fall itself. Results were compared statistically by Fisher’s exact test.

\section{Results}

A total of 50 patients were included in this study. Twenty-five patients had maxillofacial injuries and 25 patients had upper limb injuries. Personal details are recorded in Table 1 and the types of injuries in Tables 2 and 3.

Of the 25 patients who sustained upper limb injuries 23 (92\%) recalled falling over, but only 15 of 25 patients with maxillofacial injuries recalled the event (60\%). There was a significant correlation between nature of injury and recollection of event ($P = 0.02$).

The most common drug being taken by the patients was aspirin ($N = 20$), followed by anti-hypertensive drugs ($Nz$). Although 40\% of patients were taking aspirin, and a further patient was taking warfarin, there was no case of chronic subdural haematoma.

The most common medical condition recorded in 16 patients (32\%), was cardiac disease followed by hypertension in 14 (28\%). Dementia was recorded in 8 patients (16\%).

A list of suggested investigations for an elderly patient with maxillofacial trauma who does not recall the event is shown in Table 4.

\section{Discussion}

Patients who sustain facial injuries are significantly more likely not to recall the event. The reasons for
Falls in elderly people

Table 4  List of suggested investigations.

<table>
<thead>
<tr>
<th>Investigation</th>
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<tbody>
<tr>
<td>Electrocardiogram to exclude cardiac events and hypothermia²¹</td>
</tr>
<tr>
<td>Cardiac enzyme</td>
</tr>
<tr>
<td>Computed tomogram (if indicated by neurological examination)</td>
</tr>
<tr>
<td>Core body temperature to exclude hypothermia</td>
</tr>
<tr>
<td>Skeletoneuromuscular examination²²</td>
</tr>
<tr>
<td>Integrity of skin²³</td>
</tr>
</tbody>
</table>

this are either that an underlying medical condition may have been responsible for the fall, or that amnesia was sustained as a result of a closed head injury.

Older people with cognitive impairment and dementia are at increased risk of falls. There is an annual incidence of around 60% (twice that of cognitively normal people).¹⁵ The most common risk factors for falls in patients with cognitive impairment and dementia are postural instability, drugs, neurocardiovascular instability (particularly orthostatic hypotension), and environmental hazards.¹³

Eight of our patients had documented dementia.

In the population aged 65 years and over, 30% are visually impaired.¹⁴ There is an association between falling and visual impairment in people over 75 years old. Such impairment is potentially treatable in 75% of cases, but, in the UK, only a quarter of those with visual impairment are being treated.¹⁴ Only one patient reported having glaucoma. No formal data were collected regarding the patients’ visual acuity, and this is undoubtedly another factor to investigate in future studies.

Other risk factors for falls include disturbances of balance and gait, environmental hazards, drugs (psychotropic, polypharmacy), cardiovascular risk factors (orthostatic hypotension, cardioinhibitory and vasodepressor carotid sinus hypersensitivity, vasovagal syncope), feet and footwear, medical problems, depression, and cerebrovascular lesions.¹⁵ They have all been shown to be associated with recurrent falls.⁹,¹⁰

In those patients who are taking warfarin or antiplatelet drugs, particular attention should be paid to the possibility of chronic subdural haematoma. This is predominantly a disease of elderly people and usually follows minor trauma. Asghar et al.¹⁶ found that falls (57%) and anti-thrombotic drugs (33%) were the most common risk factors for chronic subdural haematoma. This is a potentially serious event that may occur as a result of a fall, and risk factors and common signs must be identified.

There are a considerable number of elderly people who fall but do not seek medical help. A fall may be disregarded as an isolated event but could be a ‘marker’ for a future event. There must also be a number of elderly people who fall, seek medical help, and sustain minor facial injuries that are never referred for a maxillofacial opinion. A random 24-h period was selected and all records in the Accident and Emergency department were examined for that time. There were 191 attenders. Of these, seven were elderly and had fallen and sustained craniomaxillofacial injuries. Only one of these patients was referred for a specialist opinion, which indicates that the present study may be an underestimate of the problem.

The type of injury depends on the nature of the fall. In particular, if people are aware that they are falling, they instinctively attempt to break their fall. Falls on the outstretched arm may cause fractures of the wrist, forearm, or humerus. Such fractures account for approximately one third of fractures in elderly patients who have osteoporosis. The risk factor for these fractures is reduced density of the femoral neck bone.¹⁷ The incidence of common, fall-related fractures was investigated in a Danish group of elderly people (over 64 years). About 26/1000 had a fracture in a year, 47% being hip fractures, and 33% fractures of the wrist. Patients with a fall-related fracture had a four-times higher risk of getting another fracture.¹⁸

We found that injuries to the upper limb occurred almost exclusively in those patients who were aware that they were falling. Many of these had slipped or tripped (mechanical fall). In contrast only 60% of patients with maxillofacial injuries remembered falling.

Elderly patients who have had one injury are at increased risk of subsequent injury. To reduce the likelihood of recurrence, attention should be directed to those patients with chronic illnesses and functional impairment.¹⁹ Strategies can be either complex or single, and include reviews of medication, use of mechanical assistance, retraining of gait, modification of environmental hazards, and treatment of cardiovascular disorders.⁴ Treatment is directed to the underlying cause of the fall and can return the patient to baseline function.⁸ Exercise is the best single preventive of falls in older people, and the ideal strategy is to combine it with other measures.²⁰ In the UK, the National Health Service Framework for older people specifically targets the prevention of falls in older people particularly in those who attend Accident and Emergency departments after a fall.¹⁵ It has recommended that all hospitals should have a special falls unit in place by 2004.⁴

In conclusion, maxillofacial trauma (as opposed to upper limb injuries) is more likely to occur in pa-
tients with an altered level of consciousness, perhaps resulting from a pre-existing medical condition. We put forward a list of baseline investigations for all elderly patients who present with maxillofacial trauma with amnesia for the event.

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References