

Self-poisoning in older adults: patterns of drug ingestion and clinical outcomes

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Abstract

Background and aims: self-poisoning accounts for a substantial proportion of acute medical hospital presentations, but has been poorly characterised in older adults. This study sought to determine the agents ingested by older adults presenting to hospital after drug overdose, and to compare clinical outcomes to younger patients.

Methods: a retrospective observational study of patients admitted via the emergency department due to drug overdose between 2004 and 2007.

Results: during the study period, there were 8,059 admissions, including 4,632 women (57.5%). This included a subgroup of 361 patients (4.5%) who were >60 years of age. This subgroup was more likely to require hospital stay >1 night, odds ratio (95% confidence interval) = 4.3 (3.6–5.5, $P < 0.0001$), transfer to a critical care area = 3.8 (1.1–13.0, $P = 0.0340$) and had higher mortality = 4.8 (1.1–22.1, $P = 0.0463$). A higher proportion of older patients required transfer to a psychiatric unit ($P < 0.0001$) or to a general medical ward ($P < 0.0001$) than younger adults.

Conclusions: older adults that presented to hospital after drug overdose had ingested different drugs than younger patients, possibly due to different prescribing patterns, and had a poorer outcome. The use of drugs associated with significant toxicity should be avoided in older patients at risk of self-harm.

Keywords: antidepressant, clinical outcome, drug toxicity, overdose, toxicology, elderly

Introduction

Deliberate self-poisoning accounts for 10% of acute medical presentations to hospital, and the rate of occurrence of self-poisoning is rising [1, 2]. The United Kingdom has one of the highest rates of deliberate drug overdose in Europe, and around 350 cases per 100,000 adults are admitted to hospital annually. The occurrence of self-poisoning in the community may be even higher because a significant proportion of cases do not seek medical attention [3, 4]. Most instances of self-poisoning do not require specific therapy, and complete recovery may be anticipated. However, deliberate overdose carries a risk of significant morbidity and mortality, depending on the toxicity of the relevant drugs and the quantity ingested.

Hospital admission due to overdose indicates a vulnerable patient group, and 15% of patients will re-harm within 1 year, and 1% will ultimately commit suicide [4]. About 90% of suicide deaths occur in patients that have underlying psychiatric disease, and the lifetime risks of self-harm and completed suicide are 25% and 15%, respectively, in patients with major depression [5, 6]. The risk of suicide increases with advancing age [7]. Older adults may be predisposed to self-harm behaviour by financial worries, social isolation and

dependence, bereavement and physical disease [8, 9]. Drug overdose is associated with additional risk in older patients because the presence of co-morbid factors and altered pharmacokinetic and pharmacodynamic variables can predispose to increased drug toxicity. Despite this, comparatively little attention has been paid to self-harm in older adults. Younger adults comprise a larger proportion of hospital presentations due to overdose; however, they generally represent a lower risk group [10].

The present study was designed to characterise the patterns of drug ingestion in older adults presenting to hospital due to deliberate drug overdose, and to compare clinical outcomes in this group to younger adults.

Methods

Data collection

A retrospective observational study examined clinical data in patients admitted to a regional toxicology unit between 2004 and 2007 inclusive. The emergency department receives patients >13 years of age from a catchment population of around 600,000, and all patients with suspected poisoning are

Table 1. Drugs used as a means of overdose, expressed as a proportion of the number of patients in each age group (note that the total may be greater than 100% due to multiple drug ingestion)

		≤50 years (<i>n</i> = 7,028)	51–60 years (<i>n</i> = 680)	61–70 years (<i>n</i> = 217)	>70 years (<i>n</i> = 144)	<i>P</i> -value
Analgesics	Paracetamol	46.6%	42.5%	41.9%	42.4%	ns
	Opioids	25.0%	26.2%	28.1%	20.1%	ns
	NSAIDS	14.9%	9.0%	6.0%	6.3%	<0.0001
Psychiatry	SSRI	12.3%	9.4%	4.1%	5.6%	<0.0001
	Tricyclics	6.3%	7.2%	8.3%	9.7%	0.0436
	Lithium	0.7%	0.3%	1.4%	3.5%	0.0089
	Novel antidepressants	4.8%	7.5%	9.2%	4.2%	ns
	Antipsychotics	5.9%	6.1%	7.4%	4.2%	ns
	Benzodiazepine	16.8%	19.6%	23.0%	18.1%	ns
	Zopiclone	4.6%	5.4%	4.1%	4.2%	ns
Cardiac	ACE inhibitors	0.4%	2.2%	0.9%	5.6%	ns
	Beta-blockers	1.7%	5.0%	4.6%	6.3%	<0.0001
	Calcium antagonists	0.4%	1.6%	1.4%	5.6%	<0.0001
	K-activators	0.2%	0.3%	0.5%	0.0%	ns
	Diuretics	0.2%	1.5%	1.4%	4.9%	<0.0001
	Antiplatelet	4.1%	4.9%	5.1%	9.7%	ns
	Nitrates	0.0%	0.6%	0.9%	2.8%	<0.0001
	Statins	0.4%	1.3%	0.9%	2.8%	<0.0001
	Ethanol	24.4%	33.4%	26.3%	12.5%	ns
	Recreational Drugs	11.8%	1.6%	0.0%	0.0%	<0.0001
Other	Antiepileptics	3.2%	4.9%	2.8%	2.8%	0.0039
	Antimicrobials	2.3%	0.6%	1.4%	0.7%	ns
	Gastrointestinal	2.1%	3.4%	4.6%	2.8%	ns
	Quinine	1.7%	1.2%	0.5%	0.0%	0.0268
	Antihyperglycaemics	1.0%	1.9%	2.3%	5.6%	<0.0001
	Anti-muscarinics	0.9%	1.2%	1.4%	0.0%	ns
	Anti-Parkinsonian	0.4%	1.2%	0.0%	2.8%	0.0003
	Antirheumatic	0.1%	0.3%	0.9%	3.5%	<0.0001
	Others	13.1%	14.9%	9.7%	14.6%	ns

P-values are for chi-square trend test across age groups.
ns = not significant (*P*-value >0.05).

notified to the toxicology unit. Patients undergo joint medical and psychiatric evaluation and are normally admitted to hospital, but a small number may be discharged directly from the emergency department or abscond. Patients are admitted to the toxicology unit, or the high dependence unit if non-invasive ventilatory support is likely to be required, or the intensive treatment unit if invasive ventilation is required. Clinical management is in accordance with TOXBASE[®], the standard resource for poisoning management advice in the United Kingdom [11, 12]. All patients attending the emergency department after suspected overdose were studied.

Data examined were age, gender, type of drug ingested, whether ethanol was co-ingested, the duration of hospital stay, if transfer to a critical care area was required, death and destination on discharge. Names, addresses or other patient-identifiable data were not studied.

Data analysis

Patients were considered in four pre-defined age groups: ≤50 years, 51–60 years, 61–70 years and >70 years. Fixed dose preparations were considered as the constituent agents; for example, ingestion of co-codamol was recorded as codeine and paracetamol. Recreational drug ingestion

included any one of amphetamine, cocaine, ecstasy, gamma hydroxybutyrate (GHB), heroin and methadone; methadone and heroin were excluded from the opioid group. The recreational drug ingestion group included intentional and unintentional overdose patients. Data were expressed as a proportion of all admissions in each year, to minimise the effect of changes in absolute hospital admission numbers due to clinical policies. Comparison was made between groups using Yate's corrected chi-square trend tests, and *P*-values <0.05 were considered statistically significant (software version 9.5, MedCalc, Mariakerke, Belgium) [13].

Results

There were 8,059 admissions, including 4,632 women (57.5%), and 12.8% of these patients were aged >60 years. Differences were noted between the types of drugs ingested between younger and older adults. Older patients were more likely to ingest tricyclic antidepressants and lithium, but less likely to ingest a selective serotonin reuptake inhibitor (Table 1). Older patients were also more likely to ingest cardiovascular drugs, including beta-blockers, calcium channel

Table 2. Outcomes after drug overdose according to age at presentation

	≤50 years (<i>n</i> = 7,028)	51–60 years (<i>n</i> = 680)	61–70 years (<i>n</i> = 217)	>70 years (<i>n</i> = 144)	<i>P</i> -value
Duration of stay					
Discharged on same day	2, 891 (41.1%)	225 (33.1%)	52 (24.0%)	25 (17.4%)	<0.0001
1 night stay	3, 637 (51.8%)	365 (53.7%)	120 (55.3%)	69 (47.9%)	ns
>1 night stay	500 (7.1%)	90 (13.2%)	45 (20.7%)	50 (34.7%)	<0.0001
Severity criteria					
Transfer to critical care	16 (0.2%)	1 (0.1%)	3 (1.4%)	0 (0.0%)	ns
Death	5 (0.1%)	4 (0.6%)	0 (0.0%)	2 (1.4%)	<0.0001
Destination					
Home	5, 759 (81.9%)	549 (80.7%)	157 (72.4%)	76 (52.8%)	0.0056
Psychiatric unit	496 (7.1%)	65 (9.6%)	24 (11.1%)	28 (19.4%)	<0.0001
Medical ward	144 (2.1%)	21 (3.1%)	20 (9.2%)	37 (25.7%)	<0.0001
Police custody	108 (1.5%)	4 (0.6%)	1 (0.5%)	0 (0.0%)	0.0089
Self-discharge	386 (5.5%)	25 (3.6%)	7 (3.2%)	0 (0.0%)	0.0004
Unknown	119 (1.7%)	15 (2.2%)	8 (3.7%)	3 (2.1%)	ns

P-values are for chi-square trend tests across the age groups.

ns = not significant (*P*-value >0.05).

blockers, diuretics, nitrates, statins and antihyperglycaemic agents, but less likely to ingest non-steroidal anti-inflammatory drugs, antiepileptic drugs, or recreational drugs. Overall, the total number of drugs ingested was similar between younger and older adults. Ethanol was co-ingested by 25.0% of the study population; the occurrence of ethanol co-ingestion was lower in patients >70 years than in those ≤50 years (difference 11.9%, 95% confidence interval 5.4–16.5%, *P* = 0.0014).

The duration of hospital stay was longer in older patients, and this group had a higher mortality rate. For patients >60 years, the odds ratio (95% confidence interval) for hospital stay >1 night was 4.3 (3.6–5.5, *P* < 0.0001), transfer to critical care area was 3.8 (1.1–13.0, *P* = 0.0340) and death was 4.8 (1.1–22.1, *P* = 0.0463). Fewer older patients were discharged home directly after the acute episode, and a higher proportion required transfer to a psychiatric facility or general medical ward (Table 2).

Discussion

The annual numbers of hospital admissions due to drug overdose were increasing between 2004 and 2007 in our institution. Women were highly represented, especially amongst younger adults, as previously reported [14]. This might reflect a gender preference of women to rely on drug overdose as a means of self-harm, whereas men may be more likely to enact physical self-harm [15]. Data from other countries indicate that women are more likely to engage in self-harm behaviour, yet have a lower rate of suicide death than men [16]. Paracetamol, other analgesics and antidepressants were the commonest means of self-poisoning across all age groups, as reported elsewhere [17–19].

A distinct pattern of antidepressant overdose was observed in the study population. Young adults were more likely to ingest a selective serotonin reuptake inhibitor,

whereas older adults were more likely to ingest a tricyclic antidepressant or lithium. This observation might be explained by different patterns of prescribing between younger and older adults. Recent guidance has led to fewer prescriptions for tricyclic antidepressants and lithium in patients at risk of self-harm, due to their toxicity in overdose [20–23]. Older adults might have had tricyclic antidepressants and lithium initiated before these changes came into effect or might have received these for an alternative indication, for example neuropathic pain. These data suggest that self-harm risk might have been overlooked in older patients that received tricyclic agents, and further work is required to examine this hypothesis. Prescribing practices are likely to account for certain age-related differences in agents ingested, for example overdose in older adults was more likely to involve cardiovascular, antihyperglycaemic and anti-Parkinsonian medications.

Older patients were more likely to require prolonged hospital stay, and had a greater need for on-going psychiatric and medical treatment. The higher mortality rate in older patients is similar to earlier reports concerning patients admitted to hospital after overdose [19, 24, 25]. These data indicate a greater impact of co-morbidities and lack of social support on outcomes in older patients. A comparatively high need for psychiatric evaluation suggests greater self-harm intent and underlying psychiatric illness in older patients. This might reflect a more determined self-harm attempt and greater poisoning severity [26]. In patients >65 years, the risk of suicide after self-harm is around 25%, compared to around 0.5% in younger adults [7, 10].

The rate of benzodiazepine ingestion was similar between groups, suggesting that these are prescribed judiciously in older patients [27]. Comparatively few older patients co-ingested ethanol acutely, which is consistent with a report from the Center for Disease Control in the United States [28]. Recreational drug use was involved in 10% of patients, and all of these patients were ≤60 years of age. This rate

will correspond to some extent with patterns of community recreational drug use; however, local police procedures to minimise harm might give rise to a higher rate of emergency department attendances than recorded elsewhere [29, 30].

A limitation is that only hospital presentations were considered, and the data might not be representative of self-harm in the community. The database does not contain details of the ingested dose, and therefore, it is not possible to distinguish between substantial and trivial ingestions between groups. A further limitation is that the study design did not allow comparison of psychiatric diagnoses between groups. Notwithstanding, a higher rate of prolonged psychiatric assessment in older adults suggests a more significant self-harm intent in this group.

In conclusion, older adults that present to hospital after drug overdose have a poorer outcome than younger patients. This is due, at least in part, to ingestion of potentially toxic drugs including tricyclic antidepressants and cardiovascular agents. The use of potentially hazardous drugs should be minimised in order to reduce access to lethal means among older patients at risk of self-harm.

Key points

- Self-poisoning is less common in older adults but is associated with greater morbidity and mortality than in younger adults.
- Older patients were more likely to ingest tricyclic antidepressants or lithium, but less likely to ingest selective serotonin reuptake inhibitors compared to younger adults.
- A comparatively high proportion of older adults that present after overdose have underlying psychiatric illness.

Conflicts of interest

None.

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Living and dying with dignity: a qualitative study of the views of older people in nursing homes

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Abstract

Background: most older people living in nursing homes die there. An empirically based model of dignity has been developed, which forms the basis of a brief psychotherapy to help promote dignity and reduce distress at the end of life.

Objective: to explore the generalisability of the dignity model to older people in nursing homes.

Methods: qualitative interviews were used to explore views on maintaining dignity of 18 residents of nursing homes. A qualitative descriptive approach was used. The analysis was both deductive (arising from the dignity model) and inductive (arising from participants' views).

Results: the main categories of the dignity model were broadly supported: illness-related concerns, social aspects of the illness experience and dignity conserving repertoire. However, subthemes relating to death were not supported and two new themes emerged. Some residents saw their symptoms and loss of function as due to old age rather than illness. Although residents did not appear to experience distress due to thoughts of impending death, they were distressed by the multiple losses they had experienced.

Conclusions: these findings add to our understanding of the concerns of older people in care homes on maintaining dignity and suggest that dignity therapy may bolster their sense of dignity.

Keywords: aged, nursing homes, qualitative research, dignity, elderly

Introduction

The majority of residents in nursing homes die within 2 years from multiple medical pathologies [1]. They are often heavily reliant on staff for their care, which can erode their sense of dignity. Maintaining dignity is given a high priority in health and social care strategy documents in most European

countries and particular concerns have been raised about loss of dignity in care [2]. Although there is a great deal of rhetoric around dignity, there is no agreed definition [3]. A brief review of the studies exploring the concept of dignity from a nursing perspective showed a wide range of definitions and themes relating to the construct; however, a common theme was respecting a patient as a person [4]. Two