- Patients are generally content for most of their [illegible] involved in, any decisions regarding sharing of their confidential information with people not involved with their health care.

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Prescription of paracetamol-containing medications as indicator of quality of prescribing

SIR—Paracetamol is widely prescribed for mild to moderate pain and pyrexia. It is available as a single ingredient and also in combination with opiate analgesics such as codeine and dihydrocodeine. The recommended dose of paracetamol for adults is 0.5 to 1 g every 4–6 h to a maximum of 4 g in a [illegible] it is described [3, 4]. Patients with poor nutrition are particularly at risk of hepatotoxicity even at doses within the recommended range [5]. This may be relevant for older people in hospital as the prevalence of malnutrition is known to be high in this population [6]. However, we are not aware of clinical trial evidence to suggest that older people should have a lower recommended dose. In fact, the current recommended dose is not based on randomised controlled trial data. Using a single intravenous dose of 500 mg of paracetamol, Wynne *et al.* showed paracetamol clearance to decrease with age and frailty [7]. Miners *et al.* showed that after administering a single oral dose of 1 g of paracetamol the total clearance and clearance by glucuronidation did not change with age although there was a reduction in clearance by sulphation and renal clearance [8]. Interestingly there was no age effect on the cytochrome P450 mediated clearance of the reactive toxic metabolite. This has also been seen in rat studies [9].

While deliberate overdose of paracetamol is well known, inadvertent, iatrogenic over-dosage is less well recognised. The National Sentinel Audit of Evidence Based Prescribing for Older People supported improvements in prescribing by measuring the quality of prescribing practice [10]. We report here on the prescription of paracetamol and paracetamol-containing preparations in 102 hospitals that participated in the audit and give an estimate of the risk of exceeding the recommended dose of paracetamol. The data were collected prior to the withdrawal of Co-Proxamol, dextropropoxyphene in combination with paracetamol, withdrawn in January 2005, because of poorly established efficacy and unacceptable risk of toxicity in overdose [11].

Methods

Hospitals in England and Wales were invited to volunteer to participate in the study in 1999 and 102 hospitals agreed. Prescribing data on paracetamol-containing medications were collected from drug charts of 100 consecutive medical in-patients aged 65 years or older on a selected day for each hospital. Data collected included the dose and frequency of all paracetamol containing medications prescribed. The total paracetamol content in milligrams prescribed to patients was evaluated over a 24 h period. We did not collect data on medications actually administered and nurses did not prescribe. Patients were considered to be at risk of overdosage if there was the potential to be administered over 4 g of paracetamol in 24 h.

Results

Data were collected for 9,979 patients. Of these, 9,927 patients had one or more drugs prescribed. Among these patients 6,141 (62%) were prescribed 6,560 medications

containing paracetamol. Apart from paracetamol tablets, four combination preparations were prescribed (Table 1). Data to enable estimation of total dosage was complete for only 6,060 patients prescribed 6,465 medications containing paracetamol (Table 2). There was a potential risk of a paracetamol overdosage for 732/6,060 (12%) of patients prescribed medication containing paracetamol. The risk of the potential for overdosage increased with the number of paracetamol-containing medications prescribed per patient. The percentage of patients at risk of potential overdosage was low (7%) when only one paracetamol-containing medication was prescribed. However, the risk increased dramatically to 90% when two paracetamol-containing medications were prescribed and to 100% with three or more paracetamol-containing medications (Table 2). Data were collected a year later in the second loop of the audit cycle and no significant changes were found.

Discussion

This study demonstrates that medical in-patients aged 65 years or older are at potential risk, through suboptimal prescribing, of being administered paracetamol exceeding the recommended therapeutic dose. The main problems were: (i) failure to specify the dose frequency; and (ii) prescribing more than one paracetamol-containing medication.

Although this study was conducted prior to the withdrawal of Co-Proxamol we do not expect the situation to have changed much since. As paracetamol is available in a number of compound analgesic preparations, a common error is to co-prescribe paracetamol with a compound analgesic containing paracetamol and exceed the recommended limit. Recently, SUREMED, an anonymous self-reporting scheme for medication errors [12, 13] alerted prescribers in King's College Hospital of such duplicate dose errors (internal communication). The alert advised that when prescribing analgesics which patients bring into hospital, doctors need to check the paracetamol content and review the current medication chart to ensure that no other paracetamol-based analgesics are prescribed.

The main limitation of our study was the unavailability of data on clinical endpoints and medications administered, which the audit was not designed to measure. While data were collected for 100 consecutive patients over the age of 65 on medical wards on a selected day for each hospital, we do not have data on the number of all inpatients at the time of audit. Over 98% of the patients prescribed paracetamol or paracetamol-containing medication had dosage data available. We did not feel that we could make a meaningful comparison between patients with and without dosage data because the latter group had only 81 patients compared with 6,040 with dosage data available.

Table 1. Paracetamol-containing medications prescribed

Name of medication	Number of prescriptions
Paracetamol	5,274
Co-Proxamol	376
Co-Dydramol	326
Co-Codamol 8/500	502
Co-Codamol 30/500	82
Total	6,560

Table 2. The relationship between number of paracetamol-containing preparations prescribed and the potential for excessive dosing

No. of paracetamol-containing medications prescribed per patient	No. of patients prescribed paracetamol-containing medication(*s*)	No. of patients where excessive dosing could have occurred (%)
1	5,668	376 (6.6)
2	368	332 (90.2)
3 or more	24	24 (100)
Total	6,060	732 (12.1)

Conclusion

Paracetamol is a popular first-line choice for management of pain and pyrexia in patients of all ages. When used at recommended doses it seldom causes adverse events [14, 15]. To reduce the risk of exceeding the recommended dose of paracetamol prescribers should avoid prescribing the drug as more than one preparation. There is no rationale for more than two preparations to be prescribed concurrently. In addition, prescribers should not rely on those who administer medicines to quantify the total dosage of potentially harmful drugs. The prescription of multiple preparations of paracetamol can be used as a marker of quality of prescribing. As mentioned earlier in this paper, there is no evidence to suggest a lower recommended dose of paracetamol for older people. The prevalence of prescriptions allowing the administration of greater than 4 g of paracetamol in a 24 h period can be used to reflect the risk of iatrogenic over-dosage in adult patients in general.

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Key points

- Paracetamol is commonly prescribed as a single ingredient or as a compound analgesic.

- The recommended maximum dose of paracetamol for adults is 4 g in a given 24-h period.
- This study showed that the risk of exceeding this dose is increased dramatically when more than one paracetamol-containing medication is prescribed.
- The prevalence of prescriptions allowing the administration of greater than 4 g of paracetamol in a 24 h period can be used to reflect the quality of prescribing in hospital in-patients.

Conflict of interest

None

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Do we really need palliative care for severe dementia patients?

SIR—The decision about the most appropriate care model for patients affected by severe dementia and acute somatic diseases is a major topic in the discussion regarding hospital processes. With this in mind, we read with interest the editorial by Parker *et al.* on 'Acute hospital care for frail older people' and the paper by Zvi Aminoff and Adunsky recently published in *Age and Ageing* [1, 2]. We share most of the statements by the authors regarding the care of elderly people in the acute hospital setting. Moreover, we appreciate the attention given to this topic in a period when geriatric wards are under pressure with the general trend to reduce acute hospital beds. In particular, the Italian national agenda is dominated mostly by an emphasis on developing intermediate care and community services for older people [3]. Some acute geriatric wards are closing and others are being converted to departments of 'low care' [4]. The remaining geriatric hospital wards have to face the difficult task of caring for a higher number of old patients with an increase in the average level of illness severity and complexity. In order to answer these difficulties we need to define new models of inpatient units. Special acute care units for elderly patient (ACE) like sub-intensive care units for the elderly, stroke units, hip units and delirium units have been developed. Most of them have been shown to be effective for specific clinical conditions. However, for many patients, i.e. those with severe dementia, the effectiveness of hospital admission has not been completely evaluated, and new models of care are in the process of being developed. Among these models, palliative care seems inspired by the most diffused cultural backgrounds.

In this framework, we would like to present our data, in order to contribute to the ongoing discussion.

From 1 January to 31 December 2003, there were 1,418 patients who were consecutively admitted to our ward. One hundred and eight patients were under 65 years of age and were excluded from the analysis, and 16 patients were lost at