

# Paracetamol overdose secondary to dental pain: a case series

I. Siddique,<sup>\*1</sup> H. Mahmood<sup>2</sup> and R. Mohammed-Ali<sup>2</sup>

## FULL PAPER DETAILS

<sup>1</sup>Sheffield Teaching Hospitals NHS Trust, Oral and Maxillofacial Surgery, Charles Clifford Dental Hospital, 76 Wellesley Road, Sheffield, S10 2SZ; <sup>2</sup>Oral and Maxillofacial Surgery, Royal Hallamshire Hospital, Glossop Road, Sheffield, S10 2JF  
\*Correspondence to: Ibraz Siddique  
Email: ibrazsiddique@gmail.com

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**Introduction** There have been documented cases of serious and life-threatening health effects due to patients taking unintentional analgesia overdose secondary to dental pain. We aimed to determine firstly what proportion of unintentional paracetamol overdose cases admitted to an acute medical assessment unit (MAU) were secondary to dental pain, secondly what proportion of such cases encountered barriers to accessing emergency dental care and finally what clinical burden such cases placed on the hospital services. **Method** The clinical coding department provided information to allow appropriate identification and data collection from patient discharge summaries and case notes of all unintentional paracetamol overdose cases secondary to dental pain over a 24 month period (1 March 2012 to 28 February 2014). **Results** One hundred and sixteen admissions were identified specifically for unintentional paracetamol overdose. Dental pain accounted for 48 (41%) of all cases. Females (67%) were twice as likely to be admitted, compared to males (33%), with a mean age of 36 years and four months. Thirty-two (63%) non-dentally registered and all nine (100%) registered patients were unable to access timely emergency dental care before their admission. Forty cases (83%) were referred to the hospital oral and maxillofacial services (OMFS). Thirty-seven (93%) patients underwent elective outpatient dental extractions and the remaining three (7%) patients were admitted for intravenous antibiotics, incision and drainage and dental extractions. All patients were treated under local anaesthetic. **Conclusion** Dental pain is the single most common cause of acute medical admission secondary to unintentional paracetamol overdose. Patients registered with a general dental practitioner (GDP), as well as those not registered with a GDP, had difficulty accessing timely emergency primary dental care.

## EDITOR'S SUMMARY

Dental pain is something that we live with on a daily basis but which we aim never to experience ourselves and try determinedly to ensure that none of our patients do either. The hard truth though is that it is a fact of life and has been throughout human history. One only has to see the ancient stone carvings made famous on Oxford colleges of faces distorted with the agonies of discomfort as the owners clutch at their jaws to be made aware of its heritage as a well-recognised affliction.

In similar vein, the history of remedies for toothache is as littered with strange concoctions and suggested behaviours as any other malady. The sufferers depicted in stone could hardly have dreamt of the power of our modern pharmaceuticals but they might also have not conceived of their potential danger.

It is troubling to read in this paper that

dental pain is the single most common cause of medical admission for paracetamol overdose. Troubling both from the viewpoint that there is unattended dental pain still being experienced but also that the result of that pain, or the attempt to ameliorate it, causes so much medical distress.

While the authors do put the number of cases into perspective and state that it represents a small average number of cases it is still incumbent upon us to discover what can be done to improve the situation. That a high percentage of patients (81%) were not registered with a GDP may be indicative of them having a lack of education and awareness of the importance of oral health. In turn this may dictate the way in which they use services and also regard medication such as analgesics. Poor comprehension of the effects, dosages and expected results may then easily lead towards unintentional overdosage.

This is possibly where greater communication with pharmacists regarding referral to local dental emergency services could be of benefit in helping the sufferer to seek treatment. Additionally, as the authors point out, dentists have an important role in the early recognition of unintentional paracetamol overdose cases. Indeed, we have recently published in this Journal an algorithm and details of a training package targeted at dentists in the acute dental pain setting to help improve early recognition and appropriate referral of paracetamol overdose cases.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under 'Research' in the table of contents for Volume 219 issue 6.

Stephen Hancocks  
Editor-in-Chief

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**IN BRIEF**

- Highlights the significant morbidity experienced by patients admitted to hospital after paracetamol overdose secondary to dental pain.
- Highlights the barriers experienced by patients in accessing timely dental care for acute dental pain.
- Suggests the majority of paracetamol overdose cases secondary to dental pain could have been prevented and managed before analgesia overdose.

**COMMENTARY**

Paracetamol overdose is the leading cause of acute liver failure in the United Kingdom, Europe and United States.<sup>1</sup> Whilst management of early overdose is relatively straightforward, staggered, and more commonly unintentional ingestion, presents a diagnostic challenge. Most deaths occur because patients present to hospital too late for effective treatment or the insidious nature of overdose is not identified or acted upon.

Unintentional overdose of analgesia due to acute dental pain is well documented.<sup>2-4</sup> From the literature, the leading cause of this appears to be difficulty in accessing timely and appropriate dental care. This problem is not resolving: despite substantial changes in organisation of dental services there remains a lack of NHS provision, particularly urgent care.

Siddique *et al.*'s well written retrospective review confirms that dental pain remains the single most common cause of acute medical admission secondary to non-intentional paracetamol overdose locally. Nationally, dental pain and back pain remain the largest causative factor in unintentional overdose. The public health implications of this are significant; paracetamol-induced acute liver failure carries with it enormous morbidity and mortality. The burden on secondary care is preventable. Most importantly, it reflects a failure of treatment provision and patient education.

In 2012 the Commission on Human Medicines (CHM) recommended changes to the management of paracetamol poisoning to simplifying treatment decisions. Undoubtedly, this has had an impact: its advice is to now to

treat all patients with staggered paracetamol overdose. This has substantially increased the number of patients being admitted to hospital and being treated actively.<sup>5</sup> However, the aetiology remains unchanged – we are now identifying more patients, including those who were previously simply reassured and discharged.

Dental pain is distressing and a multidisciplinary approach is needed. Pharmacists are well placed to provide advice to patients, as are emergency nurse practitioners in urgent care settings. Dental education should be strengthened here. Fundamentally, however, reinforcing oral promotion and addressing the shortcomings in accessing urgent care remains a key factor in preventing the unnecessary and avoidable sequelae of unintentional paracetamol overdose.

Dr Scott Rice

NIHR Academic Clinical Fellow  
University College London

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**AUTHOR QUESTIONS AND ANSWERS****1. Why did you undertake this research?**

We subjectively felt that our Oral and Maxillofacial Unit was obtaining a significant number of referrals from the Medical Assessment Unit from this group of patients. These referrals were mainly on an acute basis.

We were aware of the potential morbidity and previously documented mortality in patients taking paracetamol overdose secondary to dental pain. We wanted to assess the true burden of this problem and what potential impact this was having upon our service.

**2. What would you like to do next in this area to follow on from this work?**

We have presented our findings at a national scientific meeting and we aim to disseminate our results to clinical commissioning groups (CCGs) to highlight the problem of poor access to dental care.