

ORIGINAL ARTICLE

Influence of SIGN guidelines on removal of third molars in The Lothians, Scotland, a clinical audit

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Abstract

Aim: We carried out a prospective clinical audit to assess the impact of the Scottish Intercollegiate Guideline Network (SIGN) guidelines No 43 on the quality of wisdom tooth referrals to the Oral and Maxillofacial department of the Edinburgh Dental Institute. This was a comparable audit to that carried out in the West Midlands in 2005.

Material and Methods: The data was collected from 100 consecutive referrals.

Results: The results showed that 88% of GDPs who specified an indication for wisdom tooth removal in their referral letter were compliant with SIGN Guidance. A total of 79% of referrals required surgery for third molar removal with pericoronitis the most common indication. The referral of pathology-free wisdom teeth was 13% (Lothian) compared to 6% (West Midlands). The indications for surgery were 100% SIGN compliant.

Conclusions: The use of general anaesthesia in Lothian was markedly lower than in previous studies. This may have been due in part to the ready availability of, and clinician familiarity with, sedation techniques in the unit. The results from Lothian resembled those found in the West Midlands which suggest clinical guidelines are well applied in these two sites in the UK.

Introduction

The Scottish Intercollegiate Guideline Network (SIGN) has been responsible for developing and publishing a number of Clinical Guidelines. The intention is that they be adopted nationally (within Scotland) and implemented through the development of local clinical guidelines. Clinical practice in Scotland is therefore guided in those areas where a SIGN guideline exists, much in the same way that the National Institute of Clinical Excellence (NICE) dictates in England, Wales and Northern Ireland. It should be of note however that the Health Service in Scotland may or may not choose to adopt NICE guidelines to prevent unnecessary duplication of guideline production. In the case of 'third molar management' this was not the case.

Background

In the 1990s a number of studies reported around 20% of third molars removed were disease-free¹⁻³. This common surgical procedure is not without risk of morbidity thus prophylactic removal of disease-free wisdom teeth is not easily supported when considering the cost and risk of surgery against benefits^{1,4,5}. Surgical intervention is commonly associated with pain, swelling, haemorrhage, alveolar osteitis, trismus, nerve damage and in rare circumstances mandibular fracture as well as complications of general anaesthesia.

Despite this evidence, some clinicians were reluctant to adopt a non-interventionist approach. In Sweden, a group of general dental practitioners and oral surgeons demonstrated little or no change in attitude over a 10-year period from late 1980s to late 1990s⁶. In 1997,

a working party of the Faculty of Dental Surgery of The Royal College of Surgeons of England published a report focusing on the management of patients with 3rd molar teeth⁷. A section was dedicated to 'the indications for removal' and this document was undoubtedly considered as a useful guideline by many clinicians. One relatively large retrospective study, looking at 454 consecutively referred third molar patients⁸, as early as 1998 appeared to demonstrate excellent compliance with these 'nationally defined' criteria. In the year 2000, the first Health Technology Assessment in this area was published by NICE⁹. It offered guidance on the appropriate indications for third molar surgery. This was reinforced by the publication in Scotland of the SIGN 43¹⁰ guidance on third molar surgery also in 2000. These broadly similar guidelines were instrumental in part in reducing the number of 'unnecessary' wisdom tooth removals and referrals. A reduced demand on finite NHS resources was also expected with the outcome that fewer procedures and shorter waiting times for surgery would result.

In 2005, a prospective audit of referrals for removal of third molars was conducted in three departments of oral surgery in the West Midlands. A total of 300 referrals, 100 per unit, were audited¹¹. The compliance with NICE guidelines was assessed and it was demonstrated that all three units achieved 100% compliance in relation to reasons for appointing for surgery. The referral rate of disease-free third molars was considered low (6%). This present clinical audit follows-up this existing study and aims to establish whether the SIGN guidelines have been adopted in South East of Scotland as the NICE Guidelines have been in the English Midlands.

Patients and methods

This prospective audit was conducted in the Department of Oral and Maxillofacial Surgery of the Edinburgh Dental Institute. Data was collected from 100 consecutive wisdom tooth referrals in 2008. The audit pro forma was completed by the consulting clinician at the patient's initial appointment. This included the indication specified by the referring practitioner for wisdom tooth removal; and whether this was an accepted indication in SIGN guidance. Also, the clinician's diagnosis and grade – whether the third molar operation was to proceed – and if so, the type of anaesthesia chosen and also if this indication was compliant with SIGN.

Results

Table 1 compares the Lothian figures with the 'average' West Midlands values.

Table 1 Summary tabulation of Lothian study compared to West Midlands Data

	<i>n</i> = 100 (<i>n</i> = % unless otherwise stated) Lothians	West Midlands data Average % (Kim <i>et al.</i>)
Referrals		
No. of GDPs specifying an indication	92%	88%
GDP diagnosis		
Pericoronitis	38	47
Caries 8	24	24
Caries 7	8	Not recorded
Periapical abscess	2	Not recorded
Cyst/tumour	1	2
Pain unspecified	9	13
None	8	12
Other	10	3
Guideline compliance	SIGN compliance	NICE compliance
Of total	73%	72%
Of specified	88%	82%
Oral surgeons' diagnosis		
Pericoronitis	42	58
Caries 3rd molar	29	29
Caries 2nd molar	9	Not specified
Periapical abscess	2	Not specified
Cyst/Tumour	1	2
Pain unspecified	2	4
Pathology-free	13	6
Other	2	1
GDP/oral surgeon diagnosis concordance		
Of total	73%	69%
When diagnosis specified	79%	79%
Attending surgeon grade		
GPT	13	N/A
SHO	14	34
M Clin Dent (postgraduate student)	36	N/A
Associate Specialist	13	38
Consultant	8	5
Unspecified	16	0
Choice of anaesthesia		
LA	53	37
IV Sed/LA	25	45
GA	1	18
Proceeding to surgery		
Total referrals	79	89
Compliant surgery	SIGN 100%	NICE 100%

GA, general anaesthetic; GDP, general dental practitioner; GPT, general professional trainee; IV sed, intravenous sedation; LA, local anaesthetic; NICE, National Institute of Clinical Excellence; SIGN, Scottish Intercollegiate Guideline Network; SHO, senior house officer.

A total of 92% of patients referred for removal of third molars had an indication specified by their referring general dental practitioner (GDP). Seventy-three (73%) of these referrals were compliant with

SIGN guidance and this represented 88% of those referrals that specified an indication. There were 27 referrals that were non-compliant, eight of which gave no specified indication what so ever. The remaining 19 non-compliant specifications included, pain unspecified nine, impaction three, food packing three, gum recession second molar two, reduced opening one and bleeding one. Twelve out of these twenty-seven cases were still considered compliant by the Oral Surgeon and appointed for surgery. The commonest compliant indication was pericoronitis of the third molar, diagnosed by 38% of referring GDPs and 42% of oral surgeons. Carious third and second mandibular molars made up almost a third of referrals (32%). Thirteen per cent of referrals were considered pathology-free by the Oral Surgeon. There was a diagnostic concordance of 73% between GDPs and surgeons, rising to 79% for only those referrals that specified a diagnosis. Supervised staff in training consulted around 80% of patients with only 21% of consultations being attributed to Consultants, Associate Specialists or Staff Grades.

A total of 79 of the 100 patients were operated on and all of these operations were deemed SIGN compliant. The department offers procedures under both local anaesthetic (LA) and intravenous (IV) sedation. LA was the most popular choice (67%); sedation was used in a third of operations (32%). General anaesthetic (GA) was utilised for one operation where the unerupted wisdom tooth was associated with a cyst.

Discussion

The authors accept that the sample size in this study is relatively small compared with other studies. However, we would suggest that this audit does demonstrate that GDPs in Lothian are ostensibly following current SIGN 43 guidelines, i.e., 88% of specified referrals were guideline compliant. This result was similar to the finding of 82% in West Midlands¹¹ and 92% in Bristol¹². Inappropriate referrals included those that considered removal justifiable for gum recession, food packing or tooth impaction. It is noteworthy that 12 of the 27 referrals with a non-compliant indication were still judged to be SIGN compliant and warrant surgery. This suggests that the referrers did generally have a good intuitive sense that surgery was indicated¹³ despite writing a suboptimal non-compliant referral.

Pericoronitis, followed by caries, are widely reported as the most common indications for removal, and there was no change to this pattern in

Lothian and West Midlands data. The diagnostic concordance of 73% found in Lothian was similar to that of 69% found in the West Midlands, which indicates that specialist clinicians will make judgements independent of referral letters. Junior staff in training would have appeared to have seen far more wisdom teeth referrals in Lothian than in the West Midlands. However, in such a training institution as the Edinburgh Dental Institute all treatment plans are confirmed with a senior supervising clinician.

In the 1990s, a high proportion of wisdom teeth removals in UK hospitals were still being performed under general anaesthesia⁵ while local anaesthetic must be considered the most economical anaesthetic method for pain control for wisdom tooth removal. When used in the appropriate population IV sedation has fewer associated risks and allows a more rapid turnover with less resource implication than if general anaesthesia is employed. It was encouraging that the EDI relied significantly more on LA and IV sedation than GA. (West Midlands appointed on average 45% of patients for treatment under GA.) Although these results were significantly different, both do show a reduction in the use of GA from previous studies. This may be a result of a greater understanding of indications for third molar removal, thus reducing the need for bilateral operations that previously would have been appointed for GA.

In contrast, two units in the West Midlands had multiple theatre lists for GA removal and referred no patients for sedation. The third unit had similar facilities to the EDI but still referred nearly a third of patients for GA. This may be a reflection on the smaller workforce and facility restraints in that hospital compared to the EDI where the expansion of IV facilities for providing for short duration procedures on medically fit patients has been greatly encouraged.

In summary, this audit demonstrates that clinical guidelines for wisdom tooth removal are well adhered to both by referring GDPs and hospital clinicians in Lothian. Referral of disease free wisdom teeth represented 13% of those referred in Lothian compared to 6% of those in the West Midlands study. This demonstrates a good appreciation of guidelines in relation to the referral of impacted third molars in these geographical locations. Some improvement in guideline compliance in the case of referrers in the South East of Scotland could be expected to reduce slightly the pressure on NHS resources. The continuing audit of this area of clinical practice is to be encouraged and where necessary remedial action taken to improve efficiency and ultimately the quality of care.

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