

Audit Article

The influence of medical audit on the management of epistaxis in three District General Hospitals

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Abstract

The implementation of audit in most hospital departments in the UK has been instigated by the guidelines set out by the Royal Colleges. This paper aims to demonstrate the results of regular subregional audit meetings in the ENT departments involving three District Hospitals in East Anglia. We report the effects of audit meetings in improving the management of epistaxis, whereby a protocol for treatment and discharge was established, the duration of the nasal pack left *in situ* was reduced, and the material of the pack was changed.

Key words: Professional review organizations; Epistaxis

Introduction

The incidence of epistaxis is estimated at 30 per 100 000 per year (Small and Maran, 1984) and prevalence at 10–13 per cent of the general population (Shaheen, 1970). Hence the management constitutes a significant part of GP and hospital ENT practice with marked variation in management techniques. An audit is necessary to collectively review standards, observe practice, set standards, compare practice and standards and finally implement changes as outlined in the audit cycle of the Royal College of Physicians of London (1989). The concept of audit is to introduce into medical practice a constant cycle of review and change (Dingle and Flood, 1991) and to achieve as its end result improved clinical standards and quality of patient care (DeLacey, 1992).

Materials and methods

A prospective study was carried out in the three main District General Hospitals in the area, i.e. The Ipswich Hospital serving a population of 323 600, West Suffolk Hospital, Bury St Edmunds serving a population of 230 000, and Colchester General Hospital, Colchester serving a population of 290 800. Each of the three hospital departments was set up in a similar fashion, the staff consisting of two Consultants, one Associate Specialist, one Registrar, and two Senior House Officers at Ipswich, and two Consultants, one Clinical Assistant, and two Senior House Officers each at Bury St Edmunds and Colchester. A total of 212 patients (M : F – 107 : 105) with epistaxis were reviewed over an 11-month period (April, 1991 to March, 1992) in the three hospitals. There were no set treatment or discharge policies in any of the hospitals

prior to the commencement of the study. The previously existing policies in the three hospitals are outlined in Table I.

The objectives of the study were outlined at one of our quarterly subregional audit meetings and a general data entry form was drawn out (Table II). This was to be completed by the junior staff at each hospital when admitting a patient with epistaxis. The primary aims of the study were to determine the influence of the material of the nasal pack on the length of stay of these patients in hospital, and to find out if the duration of the pack *in situ* could be reduced. For this purpose a trial was carried out using bismuth iodide paraffin paste (BIPP) as the pack-

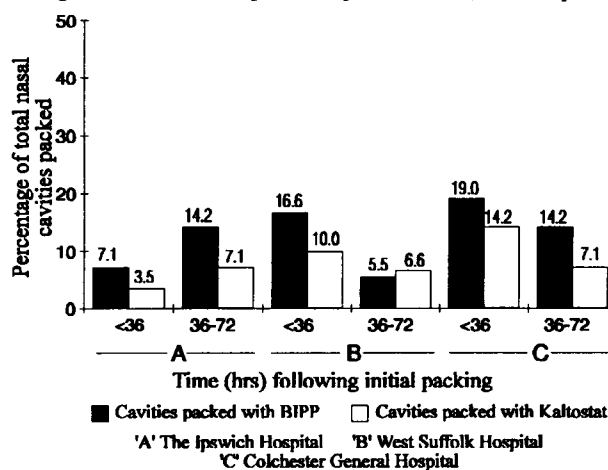


FIG. 1

The percentage of patients with recurrence of epistaxis which required repacking in the three hospitals, plotted against the time following initial packing.

TABLE I
THE TREATMENT AND DISCHARGE POLICIES FOR EPISTAXIS IN THE THREE HOSPITALS PRIOR TO THE COMMENCEMENT OF THE STUDY

	The Ipswich Hospital	West Suffolk Hospital	Colchester General Hospital
Treatment methods			
(a) Chemical cautery	Frequently	Frequently	Frequently
(b) Electrocautery	Occasionally	Occasionally	Never
(c) BIPP for nasal packing	Frequently	Frequently	Frequently
(d) Kaltostat for nasal packing	Never	Occasionally	Never
(e) Postnasal balloon	Occasionally	Occasionally	Frequently
Discharge methods			
(a) Duration of pack in nose	24–48 hours	36–72 hours	36–72 hours
(b) Length of stay in hospital if no coincidental medical/social problems	48–72 hours	>72 hours	>72 hours

Frequently: greater than 4/10 patients.
Occasionally: less than 2/10 patients.

ing material for five months followed by the use of Kaltostat (calcium–sodium–alginate fibre) for the next six months. In addition, other factors were also noted during the study i.e.:

(i) the degree of comfort for the patients; (ii) the ease of insertion and removal of the packs for the medical and nursing staff; (iii) the rate of recurrence of epistaxis following removal of the pack.

The changes implemented in the treatment and discharge practices of epistaxis were based on a fixed protocol and were followed concurrently by all three hospitals. They are outlined in Table III.

TABLE II

DATA COLLECTION FORM FOR SUBREGIONAL AUDIT ON EPISTAXIS

Epistaxis – subregional audit		
Complete all questions, with details on reverse if necessary		
Name:	D.O.B.	Sex
Age group: 0–10: 11–20: 21–30: 31–40: 41–50: 51–60: 61–70: 71–80: 81–90: 91–100		
Date of admission:	Time of admission:	
Date of discharge:	Length of stay:	
Method of admission: A&E: G.P.: Self-referral: Ward referral		
B.P. on admission	B.P. on discharge	
Any past history of epistaxis: YES/NO If YES: Admitted?: YES/NO		
Any haematological disorder: YES/NO	On anticoagulant?: YES/NO	
Previous nasal operations: YES/NO Relevant medical conditions:		
Clinical findings:	1 Bleeding side:	Right/left
	2 Bleeding point:	ANT/Post/Unidentified
	3 DNS:	YES/NO
Treatment given:		
1 No treatment	2 Kaltostat	
3 Chemical cautery	4 Electro cautery	
5 Pack	6 Postnasal pack	
7 Cautery first, pack later	8 Pack first, cautery later	
9 Balloon	10 Any other nodes of treatment	
Number of days pack in situ: 1 : 2 : 3 : 4 : 5		
Recurrence of Epistaxis YES/NO If YES, repacked? YES/NO		
Sedation given:	YES/NO	If YES, Type?:
Antibiotics given:	YES/NO	If YES, Type?:
Haemoglobin levels on admission: <7 g/dl 7–9 g/dl 9–11 g/dl >11g/dl		
Blood transfusion given?:	YES/NO	
Readmission?:	YES/NO	If YES: Date?

Results

Of the 212 patients treated for epistaxis, 139 required anterior nasal packing. Table IV illustrates the distribution of these patients and the materials used for packing in the three hospitals.

Figure 1 illustrates the proportion of patients with recurrence of epistaxis within 24 hours, following removal of their packs, which required repacking. Comparing the two materials used for packing there was a noticeable difference between the recurrence rates, patients packed with BIPP having a higher rate than those packed with Kaltostat. Figure 1 demonstrates that the total recurrence rate in all three hospitals was 14.58 per cent with Kaltostat, compared to 26.42 per cent with BIPP.

In all three centres, the length of stay of patients without coincidental medical or social problems was primarily dependent on the achievement of complete cessation of bleeding upon removal of the nasal packs. The study in all three hospitals demonstrated that haemostasis could be achieved by leaving the packs in the nose for as little as 10 hours, compared to an average of 48 hours previously. This enabled the patients to be discharged from hospital earlier, usually within 6 hours of the removal of the packs. In general, the majority of patients were discharged home within 72 hours of admission, barring those whose recurrence of epistaxis necessitated repacking and those whose medical/social problems required them to stay in hospital for a longer period.

TABLE III

THE CHANGES IMPLEMENTED IN THE MANAGEMENT OF EPISTAXIS IN THE THREE HOSPITALS ON THE BASIS OF THE PROTOCOL DRAWN OUT AT AUDIT MEETINGS

	The Ipswich Hospital	West Suffolk Hospital	Colchester General Hospital
Nasal packing methods			
(a) Material used as first choice	Kaltostat		
(b) Material used in case of recurrence	BIPP		
(c) Duration pack left <i>in situ</i>	If inserted prior to midnight, pack removed at 9 a.m. on the following day. If inserted after midnight, pack left in during the same day and removed on following day at 9 a.m.		
Discharge methods			
(a) length of stay in hospital if no coincidental medical/social problems	4–6 hours following removal of pack if no further epistaxis		

TABLE IV
THE DISTRIBUTION OF PATIENTS AND THE MATERIALS USED FOR
PACKING IN THE THREE HOSPITALS

	The Ipswich Hospital	West Suffolk Hospital	Colchester General Hospital
BIPP	14	18	21
Kaltostat	28	30	28
Total	42	48	49

Table V illustrates the predisposing conditions of the 34 patients who required an extended hospital stay (greater than 72 hours). Of interest is the fact that although a total of 14 patients (16.2 per cent) packed with Kaltostat had a recurrence of epistaxis on removal of the pack only four (4.6 per cent) patients were required to stay in longer than 72 hours, one of which was a severe post-operative turbinectomy haemorrhage and one of which ultimately required ligation of the anterior ethmoid artery as a result of persistent uncontrolled bleeding following severe trauma to the nose.

Discussion

The results and conclusions drawn from the above study are attributed to the protocols set out by our Audit Committee at the subregional meetings and the efforts of the junior medical staff in following these guidelines and collecting the necessary data. The importance of medical audit in improving clinical standards and the quality of patient care cannot be overemphasized. Analysis of the first 71 clinical audit studies published by the Australian Clinical Review (1981–1987) showed that 10 per cent of studies had the potential to identify problems and, therefore, to induce change and improvement (Collopy, 1991). This has been the main reason behind the introduction of clinical and medical audit into hospitals and into Consultant job plans. It has been recommended by the Royal College of Surgeons (1989) that Consultants chair audit meetings in rotation while the junior staff collect and present data. This should enable comparison of the individual unit's practices with that of the consensus of medical opinion; topics should have measurable effects and have agreed standards to allow comparison and be amenable to change (Dingle and Flood, 1991). Although several aspects of clinical practice can be subjected to systematic and critical analysis, most doctors, when reviewing the quality of their care, are mainly interested in outcome, i.e. its effect on the health of their patients (Taylor *et al.*, 1989).

Our concurrent studies on patients with epistaxis have enabled several conclusions to be drawn and highlighted various steps that have required amendment to aid in the management of this condition. Calcium–sodium–alginate (Kaltostat) stimulates both platelet aggregation and whole blood coagulation (Sirimanna *et al.*, 1992) and hence exhibits both mechanical and biochemical haemostatic properties in controlling bleeding in the nasal cavity. We have shown that it is associated with a lower incidence of recurrence of bleeding on removal of the pack than BIPP. It is also easier to handle, as insertion does not require the conventional zig-zag layering of the pack from the floor to the roof as BIPP does, but a simple direct insertion into the nasal cavity. This is particularly relevant to inexperienced Senior House Officers, Casualty Officers and as in the case of one of our centres, pre-registration Surgical House Officers who have had no prior training or experience in packing noses. Patients who have been packed with BIPP or other materials have also reported less discomfort on insertion and removal of Kaltostat packs. Kaltostat is also less subject to causing complications such as myospherulosis (Mabry, 1986) and paraffinomas (Becker, 1983) which have previously been observed with the use of BIPP.

A significant proportion of the practice of medicine is based on old die-hard habits and conventions which for a considerable length of time have not been subjected to review, criticism, and amendment. Medical audit enables different centres to compare their results and aims to survey them in a more objective and systematic manner, with a view to improve the quality of treatment. In our study, shortening the duration of the nasal pack *in situ* showed that this was just as effective in controlling epistaxis as leaving it in for extended periods of time. It has also demonstrated several advantages of one packing material over another. Consequently, the use of postnasal balloons at Colchester General Hospital has reduced dramatically.

Medical audit enables clear-cut guidelines to be established for the benefit of junior staff, especially with regard to treatment and discharge policies. This is particularly important as junior doctors tend to change regularly and it is to the advantage of new staff, particularly those with little experience, to follow a protocol which has been previously experimented with and is well established in the department.

Conclusion

Our regular subregional audit sessions have served to highlight the efficiency of one nasal packing material over

TABLE V
CONDITIONS REQUIRING EXTENDED HOSPITAL STAY (>72 HOURS) IN PATIENTS PACKED WITH BIPP AND KALTOSTAT

	BIPP (n = 53)	kaltostat (n = 86)
Recurrence of epistaxis requiring repacking ± surgery	14	4
Blood transfusion	2	
Anticoagulant overdose	1	1
Myelodysplasia (pack retained for 48 hours)	1	
Uncontrolled hypertension		1
Uncontrolled diabetes		1
Steroid dependent asthma		1
Colon with metastases		1
Social reasons	4	3
Total	22 (41.5%)	12 (13.9%)

the other and has enabled us to change our practice in the treatment of epistaxis and thereby improve clinical standards and the quality of patient care. Audit is, therefore, an essential tool in critically analysing one's current methods of practice (David, 1991) implementing changes as necessary and periodically reviewing the outcome of these changes to ensure continuity and maintenance of superior standards of patient care.

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