SCIENTIFIC LETTER

Accuracy of reporting cardiac related events during long term follow up

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As new advances are made in cardiac surgery, methods to collect accurate data in the long term on cardiac related events are essential so that a broader view of the clinical effectiveness of interventions can be obtained. Published studies involving long term follow up on patients with cardiac disease commonly rely on patient recall, obtaining data through self completion questionnaires or by interview. Evidence suggests that patients over-report, and general practitioners (GPs) under-report, clinical events.^{1–3} We investigated the sensitivity and specificity of reports from patients and their GPs for identifying admissions to hospital after discharge following their index admission for cardiac bypass surgery (CABG) and compared these with hospital information systems.

PARTICIPANTS AND METHODS

Questionnaires on hospital admissions (date, hospital, reason for admission) were sent to patients participating in two prospective randomised clinical trials of CABG and to their GPs. Baseline characteristics of the two study populations (BHACAS (beating heart against cardioplegic arrest studies) 1 and 2) have been previously reported.⁴ Non-responders received up to three repeat questionnaires, followed by a telephone call. Documentation of admission by hospital information systems was regarded as the “gold standard”. Reasons for admission cited by patients and their GPs and documented in hospital information systems were classified as cardiac related or not by a cardiac surgeon and a cardiologist based at the study site. Estimates of sensitivity and specificity were calculated, including patients who could not be contacted or whose GP did not respond.⁵ These patients were classified as if either the patient or the GP had reported an admission. All deaths were included as cardiac related. Results are reported in percentages and 95% confidence intervals.

RESULTS

Median follow up was 18 months. Questionnaires were sent to 399/401 patients and to their GPs (two had died in hospital before discharge). Responses were obtained from 377/399 (95%) patients and 385/399 (96%) GPs. Information from the

hospital information system was available for all 399 patients. We identified a further seven deaths from the hospital information system among non-responders. Data were returned both by the patient and the GP in 376/399 (94%) of cases. GPs tended to be better at reporting hospital admissions, including those for cardiac related events, than patients (table 1). However, greatest sensitivity (95% and 93% for all admissions and cardiac related admissions, respectively) was obtained using a composite criterion—that is, reported admission by either the patient or his/her GP (table 1).

DISCUSSION

Our study examined the level of accuracy of reporting by patients and their GPs on hospital admissions during follow up. Our data suggest that patients and GPs are not, separately, sensitive sources of information about hospital admissions following CABG.

These results should, however, be applied with caution to other settings such as clinical audit. Patients participating in clinical trials may be more motivated to respond than patients in other follow up studies, and obtaining information from general practice notes requires a patient's permission. Our findings also apply only to one hospital and the quality of other hospital information systems may vary. We were unable to obtain information for other hospital systems to which patients had been admitted, thus the frequencies of admission considerably underestimate the total admission rate. Lastly, the findings may be biased since extraction of data from hospital systems was not blinded.⁵ However, information was retrieved routinely by database queries, which is unlikely to have introduced bias.

Previous publications on long term follow up of patients following cardiac interventions may have underestimated cardiac related events requiring hospital admission. We conclude that requesting data from both patients and their GPs at short and regular intervals about hospital admission is a sensitive and specific method of detecting cardiac related events and is practicable and inexpensive for the follow up of long term outcomes.

Table 1 Sensitivity and specificity of identification of hospital admission by patient and their general practitioner (GP)

Identification of		Patients	GPs	Either patients or GPs
All admissions:	Sensitivity	29/41, 71% (95% CI 44% to 84%)	35/41, 85% (95% CI 71% to 94%)	39/41, 95% (95% CI 83% to 99%)
	Specificity	343/358, 96% (95% CI 92% to 98%)	351/358, 98% (95% CI 96% to 99%)	351/358, 98% (95% CI 96% to 99%)
All cardiac related admissions:	Sensitivity	21/30, 70% (95% CI 51% to 85%)	24/30, 80% (95% CI 61% to 92%)	28/30, 93% (95% CI 78% to 99%)
	Specificity	354/369, 96% (95% CI 93% to 98%)	362/369, 96% (95% CI 96% to 99%)	363/369, 98% (95% CI 96% to 99%)

CI, confidence intervals.

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IMAGES IN CARDIOLOGY

Malposition of ventricular pacemaker lead as an incidental finding

A 65 year old man with a past history of rheumatic fever was admitted to our institution with a history of recent melaena stools. His only regular medication was aspirin. Blood tests confirmed microcytic anaemia and subsequent gastroscopy revealed two small (0.25 cm) gastric ulcers and the patient was placed on long term proton pump

inhibitors. Five years earlier the patient had received a single chamber (ventricular VVI mode) pacemaker for sick sinus syndrome at another institution.

An ECG performed during the current admission showed ventricular pacemaker spikes followed by pattern of depolarisation associated with right bundle branch block

(below left), rather than the typical pattern of left bundle branch block. Subsequent echocardiography showed that he had a secundum type atrial septal defect with the ventricular pacing lead crossing the defect and then being tethered to the posterior leaflet of the mitral valve and lateral left ventricular wall (below). There was prolapse of the anterior mitral leaflet associated with moderate mitral regurgitation. No action was taken as there had been no complications during the previous five years and pacemaker and lead functions were normal.

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