Audit of stroke care at the Institute of Neurology, National Hospital of Sri Lanka, 1994-1997

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(Index words: Retrospective case record evaluation, deficiencies, interventions)

Abstract

Objective   To audit the process of stroke care.

Design   Retrospective case record evaluation using an audit package designed by the Royal College of Physicians of London.

Setting Institute of Neurology, National Hospital of Sri Lanka, Colombo.

Patients 263 patients with stroke admitted over a period of 3 years.

Measurements Documentation of 60 audit items related to 13 aspects of stroke care.

Results The process of care was considered 'very good' for only 11 (18.3%), and 'good' for only 9 (15%) of the audit items. Care was 'average' for 5 (8.3%), 'poor' for 9 (15%) and 'very poor' for 26 (43.3%) of the items.

Conclusions Stroke care was suboptimal in many aspects. Care related to rehabilitation oriented neurological assessments, initiation of secondary preventive measures, rehabilitation planning and discharge planning were especially deficient.

Introduction

Stroke is a much neglected illness. In spite of the enormous impact of stroke on patients, care givers and the society, stroke care remains poor throughout the world, even in developed countries (1). Stroke care in Sri Lanka has not been previously evaluated. We did an audit of stroke care at the Institute of Neurology of the National Hospital of Sri Lanka (NHSL), Colombo.

Methodology

Patient selection

Case records of all patients admitted to the Institute of Neurology over a period of 3 years (October 1994 to September 1997) were scrutinised, and records of all patients with stroke (n=263) were identified for retrospective analysis. No sampling was performed. Case selection was based on the clinical diagnosis of stroke based on WHO criteria (2), and recorded confirmation by computed tomography (CT) where available. Cases with an initial clinical diagnosis of stroke, all subsequently refuted by CT were excluded. Patients with transient ischaemic attacks (TIAs) and patients readmitted for further investigation or management of complications of a previous stroke were also excluded.

Audit package

An audit package designed by the Royal College of Physicians of London (RCP) and the United Kingdom Stroke Audit Group (3) was used to evaluate the process of stroke care. The package consisted of stroke audit forms for the data entry, and software for data analysis. The RCP stroke audit package has been previously used in many centres (4, 5).

Data collection

Data from the case records were recorded in RCP stroke audit forms and trasferred into a computer database. The audit form contained 60 audit items, categorised under 13 subheadings assessing different aspects of documentation of stroke care (Table).

There were 3 possible responses to each audit item; 'Yes' – if the information has been recorded, or 'No' – if the information has not been recorded, or 'No, but' – if the information has not been recorded, but this was considered acceptable in the given circumstance. For example, not assessing visual fields or speech in an unconscious patient would be recorded as a 'No, but' response. The relevant information had to be recorded within a specified time frame to be considered acceptable.

Data analysis

The result for each audit item was expressed as a percentage value (OK%), which was an indication of the quality of documentation of care.

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$$OK\% = \frac{\text{Number of } Yes \text{ responses}}{\text{Number of } Yes \text{ responses} + \text{Number of } No \text{ responses}} \times 100$$

For the purpose of this study, we graded quality of care according to the OK% as follows: very good (81 to 100%), good (61 to 80%), average (41 to 60%), poor (21 to 40%), and very poor (0 to 20%).

Table. Documentation of audit items of stroke care

Audit item	OK%	Audit item	OK%
1. History		**7. Usual baseline investigations**	
Source of history	62	Full blood count (93), ESR (73),	
Rate of onset of symptoms	82	Urea and electrolytes (89),	
Record of admission drugs	19	Glucose (97), ECG (62)	
2. Risk factors		**8. Special investigations**	
Previous stroke or TIA	22	CT Scan	68
History of hypertension	71	Investigation for rare causes	63
History of heart disease	51		
History of diabetes	60	**9. Immediate management plan**	
Peripheral vascular disease	0	Hydration	9
History of hyperlipidaemia	1	Urinary incontinence	4
Smoking (32), alcohol (30)			
		10. Management in the first week	
3. Pre-stroke function		Consultant review	84
Record of dependence	15	Review of important deficits	82
Use of social services	4		
Employment	32	**11. Rehabilitation**	
		Record of personal interests, list of	
4. General examination		patients' problems, objectives or	
Pulse rate and rhythm (42), blood		rehabilitation goals, re-assessment of	
pressure (96), heart sounds (79),		functional status, multidisciplinary	
Neck bruits (22), peripheral pulses		meeting, information given	
(2), funduscopy (89)		to patient/relatives – all < 4%	
5. Neurological examination		**12. Discharge planning**	
Conscious level (82), eye movements		Ownership of accommodation, type of	
(69), power in the limbs (94),		accommodation, living alone/not, stairs/	
communication (39), trunk control or		ground floor / lift, access to toilet,	
gait (12), swallowing (20),		informal support available – all < 3%	
formal mental test score (2),			
visuospatial function (2), visual		**13. Secondary prevention**	
fields (36), sensory testing (58)		Blood pressure after 4 days	81
		Antihypertensive medication	52
6. Clinical diagnosis		Long term aspirin	77
Clear diagnostic formulation	22	Long term anticoagulation	7
		Advice about smoking	0
		Non-invasive carotid imaging	31

OK% – quality of care, expressed as a percentage (see text)
Values within parenthesis are percentages

Results

'Very good' care as defined for the study was achieved only in 11 (18. 3%) of the audit items. These included certain neurological assessments (such as recording of symptom evolution, blood pressure, conscious level, limb power, funduscopy), performing baseline investigations (such as blood count, urea and electrolytes, blood glucose), and consultant review. 'Good' care was noted for only 9 (15%) of the audit items. Carrying out routine investigations such as erythrocyte sedimentation rate (ESR) and ECG, computed tomography (CT) scanning, investigating for rare causes of stroke and starting aspirin for secondary prophylaxis were among these.

Care was 'average' for 5 (8.3%), 'poor' for 9 (15%) and 'very poor' for 26 (43.3%) of the items. Basic clinical data such as drug history, previous strokes or TIAs, peripheral vascular disease, smoking and alcohol habits, and cardiac rate and rhythm were poorly documented. Assessment of aspects important in rehabilitation such as pre-stroke function, communication, trunk control or gait, swallowing, visuospatial function and visual fields was extremely unsatisfactory. Formulation of a clear and complete diagnosis, and immediate management of hydration and urinary incontinence were deficient. Many aspects related to rehabilitation planning, discharge planning and secondary prevention were very poor (Table).

Discussion

We used a previously validated audit instrument, the RCP audit package, for this study. The RCP stroke audit was simply an audit of good clinical practice. The majority of the items audited (51 out of 60) are basic clinical variables that can be easily assessed by the bedside, and the routine investigations are readily available in most hospitals. Facilities for CT scanning, non-invasive carotid imaging and investigation for unusual causes of stroke (echocardiography, haematological screening etc.) were available at the NHSL during the period of study. The RCP audit package was therefore applicable in our setting.

Audit is a powerful tool for evaluating patient care in clinical practice, enabling identification of relative strengths and weaknesses. This study indicated serious deficiencies in stroke care at the Institute of Neurology. Rehabilitation oriented clinical assessments, rehabilitation planning and discharge planning were extremely poor. This may have been partly due to the paucity of comprehensive rehabilitation services in acute care settings, the complete absence of a multidisciplinary approach to patient care, and the lack of emphasis on rehabilitation in undergraduate and postgraduate medical education.

The purpose of audit is to identify deficiencies of care, and to introduce remedial interventions. As a result of this audit, several changes were made in the structure and process of stroke care at the Institute of Neurology. These included the introduction of a structured clerking format to improve documentation, including rehabilitation oriented neurological and functional status assessments. A widely used functional assessment scale, the Barthel Index of activities of daily living (6), was included in the clerking format. A stroke unit was established at the Institute. A multidisciplinary stroke team was set up, with specialist inputs in speech therapy, physiotherapy, occupational therapy and social services support.

Conclusion

The RCP stroke audit package was successfully used at the Institute of Neurology, and stroke care was found to be suboptimal in many aspects. The audit has served to bring about major changes, which we believe will lead to significant improvements in stroke care.

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