

References

- EDWARDS, J. G., NUNN, C. M. H. & RICKETTS, B. S. (1987) Three years of medical audit in a psychiatric unit. *Bulletin of the Royal College of Psychiatrists*, **11**, 154–155.
- JAMES, A. (1992) Practical experience from a regional secure unit. *Psychiatric Bulletin*, **16**, 84–85.
- THE ROYAL COLLEGE OF PSYCHIATRISTS (1989) Working Party from Council. Preliminary report on medical audit. *Psychiatric Bulletin*, **13**, 577–580.

Psychiatric Bulletin (1993), **17**, 536–537

The quality of computerised tomography use in two psychogeriatric services

JON SPEAR, Research Registrar, St Nicholas Hospital, Gosforth, Newcastle upon Tyne NE3 3XT

The aim of medical audit is to improve the quality of medical care (Department of Health, 1989). There was concern that patients referred to a psychogeriatric service (Service X) did not have adequate access to computerised tomography. The nearest computerised tomography scanner was located in a neighbouring district and direct referrals were not accepted. Computerised tomography scans could be obtained indirectly by referral to neurosurgeons. Because of these difficulties “potentially treatable structural lesions” (such as cerebral tumours and subdural haematomas) may have been missed. We decided to compare the use of computerised tomography scans with a nearby service (Service Y) which had a computerised tomography scanner on site. Service X had a catchment population of 33,000 aged over 65 and Service Y a catchment population of 23,420 aged over 65.

Weinberger (1984) has suggested the following indications for CT scans for elderly psychiatric patients:

- (a) confusion or dementia of unknown cause
- (b) first episode of psychosis of major depressive episode
- (c) prolonged catatonia
- (d) personality change.

In a study of patients with confusion or dementia 36 out of 331 (10.9%) had potentially treatable lesions identified by CT scanning (Roberts & Caird, 1990). Risk factors which increase the probability of “potentially treatable lesions” in elderly patients with confusion or dementia are focal neurological signs, headaches, papilloedema, epilepsy (Bradshaw *et al*, 1983), reduced alertness and a duration of less than one year (Roberts & Caird, 1990).

The study

All patients in service X and service Y referred in 1990 and who had computerised tomography head scans were included. Fifty controls were randomly selected from patients referred to service Y in 1990. Information from case-notes was recorded on a proforma.

Findings

Patients referred to Service Y were more likely to have a computerised tomography scan (21/222 v. 10/449; $\chi^2=16$; d.f.=1; $P<0.001$) than patients referred to Service X. Patients who had computerised tomography were younger than controls (72.1 years v. 78.5 years; $t=2.4$; $P<0.05$). Most patients who had computerised tomography were male (18/31) while most controls were female (38/50; $P<0.01$).

All patients who had computerised tomography scans had an indication. For Service X these were confusion (6) and dementia (4). For service Y the indications were confusion (4), dementia (11), first onset psychosis (5) and personality change (1). There was no difference in the frequency of risk factors between Service X (9/10) and Service Y (17/21). Nine patients (29%) had focal neurological signs; of these four had cerebral infarcts, two atrophy and three had potentially treatable lesions (a meningioma, a subdural haematoma and normal pressure hydrocephalus). Focal neurological signs were a predictor of “potentially treatable lesions” (Fisher’s Exact Test; $P=0.008$). Twenty-two patients did not have focal neurological signs; of these nine had infarcts, 11 atrophy and two were “normal”. All three patients with “potentially treatable lesions” were from Service X.

The computerised tomography scan helped to rule out "potentially treatable lesions" in 15/31 patients and confirmed the provisional diagnosis in 12/31 patients. In four cases the computerised tomography scan was not valuable, including one case of normal pressure hydrocephalus which was not identified by computerised tomography scan.

Forty of the 50 controls (66–90%; 95% confidence intervals) had an indication for a scan, 20 (27–54%) controls had risk factors for "potentially treatable lesions" and nine (8.9–31%) had focal neurological signs (although this may be an underestimate as a neurological examination was not recorded in ten cases).

Comment

Quality in health care can be measured in terms of access to services, equitability, relevance, acceptability, efficiency and economy (Maxwell, 1984). As expected patients referred to the service without a district-based computerised tomography facility had restricted access. The suggestion that there is bias against female patients having computerised tomography is of concern.

The efficiency of computerised tomography scans can be measured by the rate of identification of "potentially treatable structural lesions". Service X was more efficient than a tertiary neurological centre (Roberts & Caird, 1990) but when the results of both services are combined they are similar in efficiency to previous studies.

Effectiveness is the proportion of patients who had computerised tomography out of those who needed it. On this basis the service with direct access to computerised tomography was more effective but there was considerable unmet need for computerised tomography in patients referred to both services.

It is more economical to use computerised tomography scans selectively on psychiatric patients with focal neurological signs rather than as a screen for structural lesions (Larson *et al*, 1981). If only patients referred to the Services with both an indication for computerised tomography scanning and focal neurological signs received computerised tomography scans then Service X could have omitted five scans and Service Y 17 scans.

All referrals for computerised tomography by both services were appropriate. The services were as efficient as a tertiary neurological centre at identifying "potentially treatable lesions" but effectiveness was low with demand and need out-stripping supply. The provision of computerised tomography scanning for both services could be increased by using existing computerised tomography facilities more effectively for example carrying out scans out of hours.

The following guidelines are suggested.

- (a) All elderly psychiatric patients should have a neurological examination.
- (b) CT scans should be used selectively in the clinical assessment of elderly psychiatric patients based on the history, mental state examination and neurological examination.
- (c) If a CT scan is indicated and the patient has focal neurological signs the reasons for not scanning should be documented.

Acknowledgements

The author would like to thank Dr Peter Thompson, Consultant Psychogeriatrician, St Mary's Hospital Stannington, Dr Andrew Fairburn, Consultant Psychogeriatrician, Newcastle General Hospital and Edwina Makepeace, Medical Secretary.

References

- BRADSHAW, I. R., THOMSON, J. L. & CAMPBELL, M. J. (1983) Computed tomography in the investigation of dementia. *British Medical Journal*, **286**, 277–280.
- DEPARTMENT OF HEALTH (1989) *Medical Audit. Working for Patients*. Working paper 6. London: HMSO.
- LARSON, E. B., MACK, A. M., WATTS, B. & CROMWELL, L. (1981) Computed tomography in patients with psychiatric illnesses: Advantages of a 'Rule-In' Approach. *Annals of Internal Medicine*, **95**, 360–364.
- MAXWELL, R. J. (1984) Quality assessment in health. *British Medical Journal*, **288**, 1470–1472.
- ROBERTS, M. A. & CAIRD, F. I. (1990) The contribution of computerised tomography to the differential diagnosis of confusion in elderly patients. *Age and Ageing*, **19**, 50–56.
- WEINBERGER, D. R. (1984) Brain disease and psychiatric illness: when should a psychiatrist order a CAT Scan. *American Journal of Psychiatry*, **141**, 1521–1527.