Age and Ageing 2004; **33:** 93–94
DOI: 10.1093/ageing/afh061

EDITORIALS

Care pathways for hip fractures: a useful tool or passing fashion?

Integrated care pathways or ICPs as they have been termed continue to be introduced into medical practice. Given the resources consumed in their development and implementation it is appropriate to question their usefulness. Ideally, any assessment of the effectiveness of ICPs should be within the context of randomised controlled trials, which although not impossible, is difficult to achieve. Randomisation of a group of hip fracture patients to either have their care documented with an ICP, or to act as a control, will inevitably result in 'contamination'. Practices suggested for those on the ICPs will be used on the patient in the nearby bed, who may have been allocated not to have an ICP. To reduce this contamination, cluster randomisation may be used, whereby selected wards or units use ICPs and other units act as controls. Differences in aspects of care, such as facilities or staff available between the different units, may affect the results and to minimise this as many units as possible should be used. Cluster randomised trials therefore require much greater patient numbers, as the analysis centres on the number of wards or units involved and not the individual patient.

Very much the second best method for evaluation of ICPs is the 'before and after' study, as presented by Roberts and colleagues [1]. They have, however, made an admirable attempt to minimise possible confounding factors. Their carefully collected data shows that a number of changes, many not related to the use of ICPs, were occurring in the treatment of these patients over the two study periods. The mean time in the accident and emergency department increased from 4.9–5.6 hours, more delays to surgery occurred, less uncemented hemiarthroplasties were used, more operations were undertaken by consultants, more anaesthetics were given by consultants and patients received more occupational therapy. As to be expected from such datasets some of the outcomes after treatment for the hip fracture showed a statistically significant difference between the before and after ICP groups. After the introduction of ICPs there were less wound infections, urinary tract infections and pressure sores, whilst cardiac complications and length of hospital stay increased. To suggest that some of these differences in outcome were related to the introduction of the ICPs can only be speculative.

A similar before and after study for hip fracture patients using ICPs was undertaken in Australia [2]. This was unable to demonstrate any benefits in patient outcomes after the introduction of ICPs and noted that their introduction was resource intensive. The single pseudo-randomised trial of ICPs for hip fracture patients that I have been able to identify [3], reported a reduction in mean acute orthopaedic ward stay from 8.0 days to 6.6 days with almost all of the 111 patients studied being transferred to rehabilitation facilities. Total hospital stay was not reported and there were no improvements in any of the clinical outcomes recorded. ICPs have been advocated for other conditions, and those for acute stroke have been evaluated and summarised within a Cochrane review [4]. Three randomised trials involving 340 patients and seven 'before and after' studies involving 1,673 patients were identified. No definite benefit could be demonstrated for the ICPs and the review concluded that there is currently insufficient evidence to justify their routine implementation for acute stroke management or rehabilitation.

That is not to say that ICPs may not be of value for other conditions, particularly for those in which the clinical course is more predictable. Hip fracture patients are a heterogeneous population with great variations in needs. It includes those who receive full care in the nursing home, through to those living alone with multiple disabilities, to the fit and active elderly. Hospital stay in our unit varies from 3 days to in excess of 6 months for those with complex needs. Because of these large differences in patient characteristics and outcomes, variations from any suggested pathway will inevitably be high.

Looking to the future, within the next 10 years it is to be expected that the patient's medical records will move to becoming electronic. This will enable each speciality or department to maintain their own records on the computer with interfacing between them as required. Joint assessment forms, check-lists and aid memoirs can be incorporated within the electronic records as required. The cumbersome paper care pathways that currently exist will have no place in the not so distant future.

I am a strong advocate for the introduction of evidence-based care and the use of clinical guidelines for hip fracture care [5, 6]. In addition simple checklist, protocols, standardised multidisciplinary assessment or admission forms etc, can all be used easily and with little extra resources to achieve this. The extension of this into care pathways has to be questioned. Hip fracture care involves many different specialties working together to provide comprehensive care. There are many aspects of this care and treatment that justify critical appraisal and evaluation. The studies to date on integrated care pathways suggest that they are unlikely to have a substantial impact on clinical outcomes. It is time to move

on to more promising areas before we waste more time and valuable resources on what can only be a passing fashion.

MARTYN J. PARKER
Peterborough District Hospital, Thorpe Road, Peterborough PE3 6DA, UK
Fax: (+44) 1733 874111
Email: mjparker@doctors.org.uk

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Age and Ageing 2004; **33:** 94–95
DOI: 10.1093/ageing/afh065

Barriers to delivery of thrombolysis for acute stroke

Recombinant tissue plasminogen activator (rt-PA) has recently been given a product licence in Europe for intravenous thrombolysis within 3 hours of symptom onset in selected patients with acute ischaemic stroke. In this issue of *Age and Ageing* Kwan *et al*. [1] report a systematic review of barriers to delivery of this treatment. The problems which are identified will be recognised by many physicians; non-recognition of symptoms of stroke by the patient or family, failure to seek urgent help, calling the GP rather than directly telephoning for an ambulance, triage of stroke patients as non-urgent by ambulance paramedics or emergency room staff, delays in obtaining CT scans, inefficient processes of in-hospital emergency stroke care, difficulties in obtaining consent for thrombolysis, and physicians' uncertainty about administering thrombolysis. The review provides a conceptual framework and 'bench-marking' information, quantifying the magnitude of the various problems. It will be of particular interest to clinicians working in units which already use thrombolysis for stroke patients and wish to increase uptake, and to those who wish to develop a new service and would like to know about potential obstacles. One criticism is that the most recent literature is not cited (from early 2001 onwards). More recent descriptive studies, however, including a multicentre project from the UK [2], have drawn similar conclusions.

Some clinicians and health service providers are still undecided about whether to make wholesale changes to stroke services to enable provision of thrombolysis. There are considerable logistical difficulties (many of which are highlighted by Kwan *et al*.) in structuring services to allow urgent assessment of acute stroke patients to enable administration of thrombolysis within the required 3-hour window. In addition there are challenges in setting up on-call rotas of trained clinicians who are willing and able to provide a thrombolysis service for stroke.

Together with these practical difficulties some clinicians still harbour doubts as to whether there is worthwhile benefit from thrombolysis in ischaemic stroke. To support the new licensing arrangements, there is only one study (in 624 subjects) of thrombolysis with rt-PA given within 3 hours of stroke onset that shows net benefit (an increase in early fatal intracranial haemorrhage tempered by a longer term benefit with regards to reduced death or dependency) [3]. This study has received criticism with respect to baseline confounding and potential conflict of interest [4], however, re-analysis of the data has in general confirmed the initial conclusions [5]. The Cochrane systematic review of thrombolysis for acute ischaemic stroke concludes that this treatment does seem to reduce the risks of long-term dependency, but at the expense of increased early mortality (associated with intracranial haemorrhage) [6].

From a geriatrician's perspective it is likely that elderly patients are at increased risk of intracranial haemorrhage following thrombolysis [7, 8]. In addition older patients are more likely to have contraindications to this treatment. The evidence-base for use of thrombolysis in the very elderly is thin, with only 42 patients in the rt-PA trials over the age of 80 [6]. The European rt-PA product licence excludes subjects beyond this age. There is sufficient uncertainty of the benefits of thrombolysis to indicate that further randomised controlled trials are required. Hopefully the 3rd International Stroke Trial will provide more definitive answers. Post-marketing surveillance will also be important. The