The Role of the Radiographer in Stroke Management

Radiographers

Radiographers are a vital part of the specialist stroke care team. Patients with acute brain attack require rapid access to high quality and appropriate imaging in order to diagnose the type of stroke 1,2.

These patients also require follow up imaging, either by CT or MR in order to assess the efficacy and/or options for further treatment.

Early intervention

Radiographers undertaking this work not only have highly specialist skills in imaging modalities, but are experienced in the care and techniques required for scanning acutely ill patients who require urgent assessment during a critical period of the care pathway. Additionally they may also have the advanced practitioner skills to review and report the images obtained to help facilitate rapid access to thrombolytic therapy by the stroke care team, or neurosurgical review, within the short timescale required. They are also able to undertake the further imaging techniques such as CT Angiography, CT perfusion imaging or MR scanning if appropriate, and depending on local protocols.

Supporting Evidence

Patients with acute brain attack or stroke have either had an acute infarction to part of the brain caused by a thrombus or blockage in one of the cerebral arteries or a primary haemorrhage forming an intracerebral clot. The former constitutes 69% of strokes and the latter 13%. Subarachnoid Haemorrhage (SAH), where blood collects in the subarachnoid space, accounts for 6% of the remainder 3.

Definitive diagnosis between these brain assaults is normally undertaken by CT brain scanning and the effective treatment, which is very different depending on the type of stroke diagnosed, cannot be commenced until imaging and interpretation of these scans has taken place. The importance of the radiography workforce therefore cannot be overestimated.

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The Institute for Innovation and Improvement undertook a review on delivering Quality and Value: Focussing on Acute Stroke – October 2006, and a literature review concluded that rapid thrombolysis in infarction of the brain, reduced long term disability outcomes by 30%. Implementation of this treatment in the UK has been limited and the Organisation of Economic Co-operation and Development (OECD) 4 in 2006 showed that the UK lags behind Europe, North America and Australia in stroke treatment. However the Department of Health has embarked on a programme of Improving Stroke Services and are likely to press for early diagnosis and intervention when it makes its recommendations for service delivery. Likewise the National Institute for Health and Clinical Excellence (NICE) is currently developing guidance on ‘Stroke: The diagnosis and Acute Management of Stroke and Transient Ischaemic Attacks, which is due to be issued in July 2008.
Thrombolytic therapy with recombinant tissue plasminogen activator (rt-PA) is licensed to be used within 3 hours of acute ischaemic stroke, thus delays in neuro-imaging must be minimised. A rigorous thrombolytic pathway with rapid access to CT scanning and reporting will need to be introduced. The patient will also need to be admitted into the care of the stroke team as part of this pathway.

Within the UK there are examples of Clinical Imaging Departments operating systems which allow for rapid access to CT scanning of patients 24 hours a day 7 days per week under NICE guidelines for Head Injury. These systems could be utilised for the imaging of stroke patients. Interpretation of the images needs to be both rapid and accurate. This may be achieved using a variety of options involving neuroradiologists, appropriately skilled stroke physicians or the use of teleradiology. A more elegant solution may be a suitably trained, competent and authorised specialist radiographer to provide both imaging and reporting. It should be noted that Postgraduate courses in interpretation of head CT images have existed for some years.

Imaging overview

Patients may present to the imaging department from a number of sources, and not necessarily acutely. Those presenting with a Transient Ischaemic (TIA) attack may require duplex carotid assessments carried out by qualified, competent and accredited staff, including radiographers in either vascular laboratories or radiology departments. They will quantify the stenosis and monitor progressive disease. Patients who have suffered a stroke will also require follow up imaging in order to ascertain the efficacy of treatment or to quantify the extent of cerebral damage. This may take the form of CT, CT Angiography, CT perfusion, MRI, MRA, diffusion weighted imaging or even conventional angiography, with or without stenting or coiling and this is all part of the radiology department’s remit working in conjunction with the stroke team to try to optimise patient outcome.

Those patients who are either unsuitable for thrombolysis therapy, or who do not have a positive response, will need other types of imaging such as chest X Rays, either at the bedside or in the department. They may also have associated pathology which has predisposed them to cerebral infarction such as peripheral vascular disease, or a history of mobility problems which requires radiological investigation. The Royal College of Speech and Language Therapy have demonstrated the value of early assessment of dysphagia (swallowing difficulties) and it has the potential to cause long term problems.

Video fluoroscopy can be useful in the assessment and appraisal of the damage, and this is jointly undertaken by Speech and Language Therapists in conjunction with Radiographers.

Stroke survivors who suffer deficit following a stroke will suffer ongoing medical problems. These may include pneumonia, urinary tract infections, and thromboembolic events and they may also have sustained other injuries at the time of the stroke. In both cases they will be frequent visitors to radiology departments and they will require sensitive support, particularly if they have cognitive impairment, in order to explain and enable them to co-operate with the imaging modality.

Workforce issues
With the rapid expansion of imaging requirement and the pressures on Radiology Departments with the 18 week patient wait guideline, imaging departments have been challenged to find innovative ways of working. Radiographers are a highly skilled workforce but anecdotal evidence has shown limitations on training budgets and there are difficulties in enabling staff to be released from departments in order to obtain advanced and appropriate skills. The Society and College of Radiographers undertook a Radiology Manager Questionnaire in September 2006. This showed that a high percentage of CT and MR posts are frozen and this will seriously impact on how radiographers can deliver the service. However, with the government commitment to skill mix and with appropriate support from commissioners, the Society and College of Radiographers supports the drive for improvement of stroke care and believes the profession can help deliver this.


7. Freeman C. The role of the radiographer in Stroke and Transient Ischaemic Attack (TIA) care and management. SCoR February 2007

