Research on New Stroke Treatments

Background

One third of stroke sufferers will die within a year, and one third will be left with significant disability.\(^1\) Recent research has produced new treatments, which have improved survival rates and decreased the frequency and severity of disability. For example, a clot-busting drug used in a technique called thrombolysis has improved the treatment of some patients who suffer acute ischaemic stroke. A positive outcome depends upon delivering the drug quickly: as early as possible up to 4.5 hours after onset of symptoms. This time constraint has partly contributed to clinical stroke services being reorganised. Such changes have led to better outcomes for stroke patients. This POSTbox, which expands on POSTnote 459, Stroke, highlights some research areas that experts feel are likely to have a clinical impact in the next five years, and may influence how stroke care is delivered.

Funding

UK research on stroke is underfunded compared with other diseases of similar economic burden, for example cancer and heart disease.\(^2\) The main funders are the National Institute for Health Research (NIHR) and the Stroke Association (SA). Smaller amounts of funding come from the Medical Research Council and the Wellcome Trust. In December 2013, the SA published a new five-year Research Strategy. This aims to stimulate stroke research by introducing themed calls to meet specific areas of need.

Some clinicians have expressed concern about the lack of industry involvement. This is partly owing to the failure of several expensive trials of neuroprotective drugs that aimed to protect the brain from stroke damage.\(^3\)

Clinical Trials

Prior to widespread use, any clinical intervention is tested in a clinical trial to determine whether it is safe and effective. Further information trials can be found in POSTnote 390, Clinical Trials.

Stroke treatment trials in NHS hospitals in England are supported by the NIHR Stroke Research Network, part of the Clinical Research Network (CRN). The CRN also collaborates with and supports the devolved nations. From April 2014, the CRN will transition to fifteen Local Clinical Research Networks and one co-ordinating centre. Each network will support research in every speciality therapy area. There is concern among some clinicians that this may lead to a loss of stroke-related focus and expertise.

The main research areas, classified by the stage of care, are outlined here.

Acute stroke care

- A trial is being conducted on a second clot-busting drug to treat acute ischaemic stroke. This aims to extend the window for thrombolysis to 9 hours.
- An investigation into whether thrombolysis used in conjunction with more detailed brain imaging (MRI) can be used to treat those who have a stroke during the night, or who do not know when their stroke symptoms began.
- A trial is underway into the effectiveness of mechanical clot retrieval, surgery to remove the blood clot after acute ischaemic stroke. The National Institute for Health and Care Excellence (NICE) reports that the treatment is unproven, but many clinicians expect it to be effective for a large number of patients. As the procedure requires highly-skilled clinicians, and must be performed as soon as possible after the stroke, its introduction would necessitate significant service reorganisation.
- A Europe-wide study aims to determine if inducing hypothermia in patients after an acute ischaemic stroke may reduce brain damage.
- Inflammation has been shown to cause damage after stroke. Various studies are ongoing into reducing inflammation in different types of stroke.

Prevention

- Stroke patients have an increased risk of deep vein thrombosis, the formation of a blood clot particularly in the leg veins, which sometimes has fatal consequences. This risk can be reduced by using compression sleeves on the patient’s legs to stimulate circulation. The NHS and NICE are reviewing their introduction into routine care.
- A trial for those who have suffered an ischaemic stroke or a transient ischaemic attack (a mini stroke) to determine whether a combination of three drugs (including aspirin) is effective in preventing recurring episodes.

Rehabilitation

- A large number of therapy trials are examining the most cost-effective approach to recovery. These include the use of robot assistance and drugs to increase the effectiveness of therapy sessions.
- A small feasibility study using stem cells is underway. This attempts to reverse some effects of neurological disability when administered several weeks after a stroke.
- Patients can have difficulty swallowing, which slows recovery and leads to further complications. A study is ascertaining whether electrical stimulation can speed up the return to normal safe swallowing.

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1. NHS Choices Stroke Recovery, Accessed 05/02/2014