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Stroke association

Final report summary:

Can 'recovery curves' improve quality of hospital care & recovery

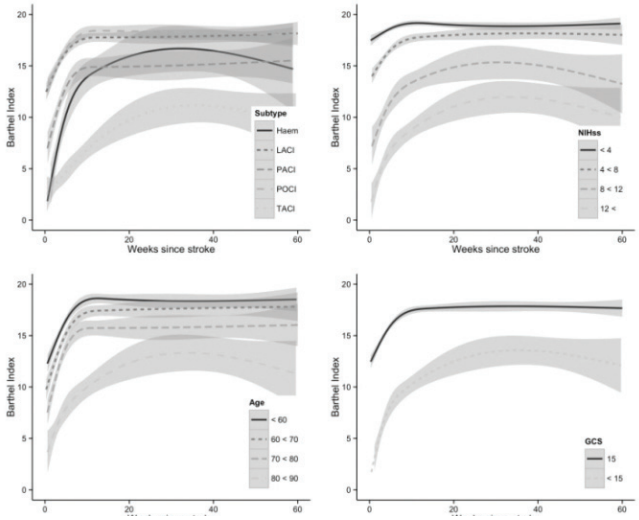
Developing and evaluating functional recovery curves as a management tool after stroke:
Phase 1 and 2 MRC framework study

PROJECT CODE: TSA 2009/02

Why did we fund this research?

Stroke survivors can be left with a whole range of physical and psychological disability following their stroke. It has often been thought that because stroke affects every individual differently, it is impossible to predict the extent of recovery each stroke survivor will achieve.

This study aimed to pilot a tool that both clinicians and researchers could use to help predict the course of an individual stroke survivor's expected functional recovery – which is defined by how well stroke survivors are able to perform tasks of daily living.



Recovery curves showing the modelled, expected recovery and actual recovery of stroke patients

The tool uses 'Recovery curves' which are graphs that show the average patterns of recovery after stroke over one year. They vary according to age and stroke severity but they do give a clear idea of the level of recovery someone with stroke should expect to achieve.

This study tested whether these curves can be used by doctors and other health professionals to help patients whose recovery is worse than predicted.

It was carried out by researchers at King's College London and took place at St Thomas' Hospital, London and King's College Hospital London. It builds on two earlier studies carried out by the research group which found that recovery varied between patients and was linked both to individual patient characteristics and to the treatments they received.

The tool takes the form of software and the study investigated the feasibility of its use in: allowing health professionals to obtain patient-specific predictions of functional recovery; assessment in a clinical setting; identifying how recovery is affected by other illnesses or complications and exploring the reasons for patients falling below their predicted curves; developing action plans for these patients and monitoring outcomes. Finally, this study will inform the design of a full, phase III trial to comprehensively investigate functional recovery using recovery curves and the software as a management tool.

The researchers used information from two groups of strokes patients from the South London Stroke Register (SLSR). The first group was used to develop the technique and the second group used to assess its usefulness.

What did the researchers find?

The researchers judged whether the curves are clinically useful by observing whether they influence clinical management. Eight interviews with clinicians were conducted. Structured and unstructured data were collected to enable description of practice and to record clinicians' views of the feasibility and utility of the recovery curve in clinical practice. Greatest utility was perceived by nursing staff and physiotherapists, then occupational therapists, whilst speech and language therapists saw the least utility.

The use of the recovery curves in a clinical setting was assessed, and this represented Phase II of the study. The predictive accuracy of the curves to be able to classify good, moderate and poor recovery was found to be satisfactory at both 3 and 12 months after stroke.

The researchers had some success in identifying how neurological and functional recovery is affected by other illness occurring at the same time as stroke. They found that patients who went on to die had a clear deviation from the recovery curves, but that for patients who survived further analysis is necessary.

The current study was unable to explore the reasons for patients falling below their predicted curves. The researchers were therefore unable to go on to investigate the use of action plans for these patients to monitor their outcomes. However, the aim is to perform these analyses in future study at the same hospitals.

This pilot study has allowed the researchers to develop a recovery curves tool which uses only a few factors which are routinely collected in clinical practice. The predictions of the tool agreed well with the actual course of recovery observed in stroke patients, and have allowed the researchers to calculate the number of patients whose information will be required for a larger Phase III, impact study to fully investigate how this prediction-based management tool could improve the quality of care after stroke.

A proposal for the study will be submitted to the Medical Research Council (MRC).

What does this mean for stroke survivors?

What does this mean for stroke survivors? It could develop into a standardised, patient tailored method of measuring how stroke patients should be recovering. Deviations from the expected recovery rate could help identify previously undiagnosed illnesses of the stroke survivor, allow prompt treatment, and modify the plan of recovery to account for this new information. The tool could also help in future stroke research by being used as a tool to measure how trial prevention and treatment interventions affect recovery.

Stroke association

We are the Stroke Association

The Stroke Association is the leading stroke charity in the UK. We believe in the power of research to save lives, prevent stroke and ensure that people make the best recovery they can after a stroke.

We're here for you. If you'd like to know more, please get in touch.

Stroke Helpline: 0303 3033 100
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Together we can conquer stroke

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