BJOT special issue: Stroke rehabilitation

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Introduction

BJOT is an international journal so it’s no surprise that this special edition includes both UK based and international studies addressing a variety of clinical and academic issues in stroke rehabilitation. They include: the impact of HIV on personal activities of daily living (ADL) outcomes in an African stroke cohort; an audit of dressing practice in acute stroke care in England; a protocol for a post-stroke fatigue intervention; a feasibility study of the perceive recall plan perform (PRPP) system of task analysis in receiving early supported discharge (ESD); a qualitative study investigating stakeholder perceptions on the use of robot-assisted and constraint-induced upper limb rehabilitation interventions in clinical practice; and an Australian quasi-experimental cohort study reporting clinical outcomes for moderate and severely impaired stroke survivors receiving ESD.

While none of the studies report the effectiveness of an occupational therapy intervention from a definitive randomised controlled trial, each makes an important contribution to the body of evidence supporting occupational therapy in stroke rehabilitation practice.

How do they do this?

In the UK the Medical Research Council framework for the development and evaluation of complex interventions is the predominant framework informing the different stages of complex intervention development and evaluation (Craig et al., 2008), see Figure 1). It was developed to help researchers select appropriate methods, help funders understand the methodological and practical constraints on evaluation design and to assist users with weighing the evidence in light of these constraints (Craig et al., 2008).

By definition, occupational therapy and stroke rehabilitation are complex. They contain several interacting components, require difficult behaviours on the part of those delivering or receiving them, target a number of different outcomes, groups or organisational levels, and they often require individual tailoring. Therefore, before progressing to the definitive trial to test whether they ‘work’ in everyday clinical practice, we must unpack the complexity. We must first understand the problem, then develop a solution (intervention to address it) use data and clinical case studies to model its effects, conduct feasibility and pilot studies and single centre proof of concept studies to establish whether the solution is likely to work, and only then assess effectiveness.

Greater appreciation of factors affecting the uptake and use of research evidence in clinical practice has also resulted in guidelines (Moore et al., 2015) urging stroke researchers to consider implementation issues from the outset – in the early ‘development’ and ‘feasibility and piloting’ stages, as well as during evaluation and implementation (Walker et al., 2017). As such, the process is an iterative, cyclical one.

The papers in this special edition are largely concerned with these early, important (development, feasibility and piloting) stages of development.

In the audit of dressing (Worthington et al., 2020), we were initially struck by how few (24%) occupational therapists in acute stroke rehabilitation report using standardised outcome measures to evaluate dressing. However, this is perhaps unsurprising given the many factors affecting the use of standardised assessment; among them confidence or training in selection and administration (Ablewhite et al., 2019). The measures themselves may become outdated or lack ecological validity (i.e. whether study findings generalise to real-life rehabilitation settings). The study also found disparity in the approach to dressing practice.

The lack of definitive evidence for one approach or another can result in a lack of clinical equipoise. Local practice, clinical opinion leaders and other organisational factors such as resources, training and therapist attributes (expertise, beliefs about evidence-based practice, knowledge and skills) can influence both rehabilitation delivery, patient outcomes and determine what research can be done. For example, clinicians’ willingness to allocate participants randomly to one intervention approach or another. Audits are thus an essential starting point to understand current practice and

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provide benchmark data to inform the planning of future trials (identify evidence).

Personal ADL is also the focus of another study in this special edition; a South African cohort study examining the one month personal ADL outcomes of stroke survivors infected with HIV (Augustyn et al., 2020), which observed a decline in personal care in infected versus non-infected patients. Like audit, these observational data can highlight a problem (identify evidence) or inform the development of an intervention (identifying or developing theory).

This special edition also includes a protocol for a new intervention to address the huge and under-researched problem of post-stroke fatigue. Published protocols not only alert clinicians and other academics to research that is underway, but importantly enable clinicians to engage at the design and development stage and identify themselves as potential collaborators for a multicentre trial. Experience-based co-design (King’s Fund, 2018) is a novel method of engagement, that ensures the intervention developed is directly based on the clinical needs and experiences of the target population. It simultaneously tackles the implementation issues concerned with acceptability and clinical utility by engaging the target population and those involved in its delivery and in its development (identifying or developing theory).

This theme of exploring the clinical needs and experiences of the target population was also evident in the qualitative study investigating stakeholder perspectives on barriers and enablers for the use of evidence-based interventions for upper limb rehabilitation following stroke (Sweeney et al., 2020). The results of that study suggest that the low uptake of evidence-based interventions in clinical practice may be due to a combination of inadequate staffing, insufficient training and resources.

Ecological validity is the primary concern in a study exploring the feasibility of implementing the PRPP system of task analysis in post-stroke ESD. PRPP examines information processing during naturalistic or real-world activities. This small feasibility study (n=10) demonstrated that PRPP can be applied to a broad range of tasks performed by stroke survivors receiving ESD without increasing the assessment load on patients or therapists, suggesting its clinical utility in ESD. It may appeal to occupational therapists wanting to measure cognitive abilities during functional tasks in a naturalistic setting. However, as feasibility studies only answer the question, ‘can it be done?’ This is an initial step on PRPPs research and implementation journey and now requires implementation and testing on a larger scale.

While all of these studies contribute to the field, one stands out in particular. Leach et al. (2020), explored clinical outcomes (functional independence, ADL, participation and balance) of a small group of moderate and severe stroke survivors (n=28) receiving ESD to convenience controls (n=13) who were medically stable and requiring intensive rehabilitation from at least two disciplines. The study looks particularly at balance – an underexplored ESD outcome. It was not powered to detect between-group differences. However, greater improvements in function and balance were observed for ESD patients in the 4–8-week period than those receiving standard care who plateaued at 4 weeks.

**Why is this important?**

ESD provides intensive coordinated multidisciplinary rehabilitation in the home for stroke survivors with mild to moderate stroke (Fisher et al., 2011), and there is good evidence that it can lead to greater functional independence (Fisher et al., 2016) reduce long-term dependency, admission to institutional care and reduce the length of hospital stay in that group (Langhorne and Baylan, 2017). However, less is known about how best to rehabilitate people with more severe stroke or which are the optimal models of care. In areas with a higher than average prevalence of severe stroke or where ESD services are integrated within community rehabilitation, deciding who gets what is problematic. Clinicians are faced with the challenge of planning and implementing rehabilitation programmes without the evidence to hand, and patients not fitting the eligibility criteria for ESD services risk being branded with ‘no rehabilitation potential’ or their rehabilitation is to be curtailed.
Early evidence from exploratory studies of this kind suggest there may be value in exploring further the clinical utility of an ESD-like model characterised by multidisciplinary, coordinated intensive services for improving balance in those with moderate or severe stroke. And this fits nicely with the NHS long term plan (NHS, 2019) commitment for more integrated and higher intensity rehabilitation for people recovering from stroke to 6 months and beyond.

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