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An expert opinion in speech and language therapy: The Queen Square Intensive Comprehensive Aphasia Programme

Abstract

Less is more, right? Wrong: more is more. Here we make the case that the total dose of speech and language therapy (SLT) is a key factor in improving persons with aphasia's (PWA) outcomes. The challenge is: how can we deliver high-dose therapy when resources are stretched? We review the recent evidence for dose and timing of SLT and then describe one solution to the problem of dose that we are trialing at Queen Square, an Intensive Comprehensive Aphasia Programme (ICAP).

Timing and dose

The evidence base for the clinical effectiveness of speech and language therapy continues to build with the latest Cochrane review (using data from 3002 participants) making it clear that, "SLT results in clinically and statistically significant benefits to patients' functional communication."¹ Cochrane reviews were not developed to evaluate complex interventions like SLT and more sophisticated meta-analyses are underway² but even in the crude Cochrane analysis, dose emerges as a powerful effect.³

Animal models of post-stroke neuroplasticity suggest that we should be going hard and early with practice-based neurological rehabilitation.⁴ There is no doubt that PWA's recovery curves are at their steepest in the first few weeks and months after stroke, but does that mean that this is the best time to intervene? The Very Early Rehabilitation for SpEech (VERSE) study is completed, a pre-print is available, but still awaiting full peer-review publication.⁵ This large, meticulously carried-out, multicentre trial randomised 246 aphasic patients to one of three groups (usual care [averaged 9.5 hours of therapy], usual care Plus [21.0 hours] and VERSE [22.4 hours]) and began SLT within two weeks of their stroke. The primary outcome was a change in the WAB-R(AQ) at 12 weeks. The main finding was that, on average, aphasic patients improved a lot on their WAB score from baseline to 12 weeks getting better by ~50% of their maximal potential recovery (the gap between baseline and ceiling score that is recovered). However, there were no significant differences between the three treatment groups, meaning that 11

hours of extra therapy in the acute phase makes little difference to medium term outcomes. The authors speculate that their trial, along with a similarly negative RATS-3 trial⁶ "...provide compelling evidence to challenge the 'more is better' mindset in early stroke and language recovery." While it is theoretically possible that there is a ceiling to what therapy can achieve in the acute phase, these sorts of conclusions cannot be made from null results, especially when the therapy dose is so small. Is it reasonable to expect clinically meaningful differences in language outcomes in patients with moderately severe aphasia based on a dose difference of only 11 hours? The landmark meta-analysis by Bhogal et al. reported that almost 100 hours of SLT were required to achieve clinically meaningful changes in communication, with negative studies weighing-in at ~40 hours.⁷ While it is heroic to carry out interventional studies in acute stroke patients, sacrificing dose to expediency leads to damagingly underdosed studies, like the ACT NoW study where patients in the intervention arm averaged only nine hours.⁸ Negative results from studies like these are frequently misinterpreted.⁹

The evidence is clearer in the chronic phase, perhaps because researchers are not battling such a radically changing baseline. Breitenstein et al. carried out a partial cross-over RCT where the intervention group received an average of 31 hours of direct therapy together with 15 hours of home (predominantly computer based) treatment over three weeks compared to 4.5 hours in the control group leading to a statistically significant improvement in language function.¹⁰ Importantly, a subgroup of patients who got at least five weeks of intensive SLT improved proportionately more, suggesting that clinically useful gains can be made when the dose is upped.

How to up the dose then? One way is to use computer-based therapies so that patients can practice in their own time. Palmer et al. did this using StepByStep software, an impairment-based therapy aimed at improving naming. Patients practiced for an average of 28 hours over six months. Comparing it to two control groups, they found a large effect on trained words (16% improvement over six months of variable practice, sustained at 12 months) which equates to a 30% improvement using the maximal potential recovery

metric.¹¹ As is often the case with these types of intervention, therapy effects were only seen on trained items which is why it was especially good to see that these had been personalised by the patients.¹²

Another approach to achieving a high-dose is to use traditional SLT but deliver it in a large dose over a short time period to those who can tolerate it, so-called Intensive Comprehensive Aphasia Programmes.¹³ We have started just such a service at Queen Square with two years' funding from The National Brain Appeal (<https://www.nationalbrainappeal.org/what-we-do/current-appeals/aphasia/>) and have been treating groups of four PWA for ~6 hours a day over 15 consecutive weekdays, to get close to the 'magic' 100 hours. The programme is embedded in a normal clinical environment (NHS), but is staffed with charity funding. The cause of aphasia is predominantly, but not exclusively, stroke. The average time since stroke/brain injury is 39 months (IQR 16:54). Outcome measures are recorded at four time points: baseline, post three-week intervention, three months, six months and 12 months. These include standardised measures of: impairment (Comprehensive Aphasia Test); function (Communicative Effectiveness Index); quality of life and mood (both patient and carer reported outcomes); and we are also collecting participant-specific, goal-based outcomes, including, where appropriate, an economic goal using the Goal Attainment Scale. Preliminary results are very promising and we will be presenting these at the upcoming European Stroke Organisation conference in November 2020: <https://eso-stroke.org/events/eso-wso-conference-2020>. We will now discuss some of the key components that make up our ICAP.

Content

Evidence-based aphasia therapy across the pathway aims to address all aspects of the international classification of functioning, disability and health (ICF) framework. Underpinning our ICAP is the rationale that addressing all aspects of the ICF simultaneously yields the best outcomes.¹³ The dose and intensity of the different types of intervention are driven by the goals negotiated between the PWA and the SLT at the start of the programme. Due to space limitations, we can only offer a brief overview of the key components here.

Brain injury education: People with aphasia and their friends and family benefit from understanding their aphasia and any other communication and cognitive changes. This is the first step to setting meaningful goals, self-management of their communication disorder and adjustment to living with aphasia. SLTs provide this at every stage across the pathway, but people living with aphasia for many years need the opportunity to develop their continual understanding of

aphasia.¹⁴ We deliver this in both 1:1 and group formats, as PWA find the sharing of their aphasia stories and questions about what has happened to them to be particularly helpful.

Meaningful goalsetting: Spending time negotiating meaningful stretching but motivating goals is an essential component of acute, inpatient specialist rehab, ICAP and community-based therapy.¹⁵ These goals may be structured using goal attainment scaling (GAS) or other similar methods and address both impairment and the impact on participation. Therapy then targets these goals, so it's essential that time is spent prioritising goalsetting at the start of therapy and continuously reviewing and updating goals throughout the rehabilitation process.¹⁶

Impairment therapy at word, sentence and conversation level: We employ a wide range of impairment-based therapies. These include verb network strengthening treatment,¹⁷ semantic feature analysis¹⁸ and gestural facilitation of naming.¹⁹

Choosing meaningful target words, phrases and topics for therapy increases motivation and likelihood of generalisation and functional use. These therapies are delivered by the SLTs, SLT assistants and via targeted computer-based therapy. The importance of embedding these target words/phrases into conversation therapy further maximises the chances of generalisation and having an impact at a participation level. Edmonds et al. demonstrated that verb network strengthening treatment (vNest) had a positive impact on trained and non-trained sentence targets and maintenance of gains and generalisation were observed, with some improvements at a discourse level.¹⁷ By delivering an adapted version of vNest for 15-30 hours through 1:1 and computer-based therapy we are observing similar levels of improvement for the PWA on the ICAP.

Communication and strategy use in a range of real-life environments:

Impairment therapy alone rarely solves the challenges faced by someone with aphasia. Using those words, phrases and sentences in real context embeds the new learning and ensures the therapy generalises into everyday conversation. Group therapy provides opportunities for PWA to practice their strategies in a conversational contact with peer support and feedback.²⁰

Taking this a step forward, "Out and about" activities provide opportunities to communicate with the general public e.g. in cafés, museums, shops, public transport with the additional challenges of background noise, unfamiliar communication partners and real-life problems to work through.

Neuropsychological interventions and support: PWA are very likely to experience low mood and depression.²¹ Until recently

they have generally been excluded from large treatment studies. Having neuropsychology integrated into our service, through 1:1 and group intervention, addresses these needs. The neuropsychologists also work jointly to provide support, education and training for friends, family and carers of PWA which helps to address some of the many adjustment and relationship changes that affect each PWA's social networks and interactions.

Communication partner training:

There is a growing body of evidence that Communication partner training (CPT) can result in improvements at conversation and relationship levels as well as at an impairment level.²² We use video as a basis for PWA and their friends/family to identify the most effective strategies to support conversation for all involved (and these will be different for different communication partners). The communication partners have capacity to take on strategies more easily and reduce the effort placed on the PWA. Including this as a component of the ICAP has been challenging logistically as people need to travel long distances to access the programme.

Future directions

The initial outcomes from the Queen square ICAP are promising. PWA, their family and friends are feeding back that some of these gains are impacting positively on their participation and quality of life. Future developments include trialing changes to the programme such as moving to four days a week over four weeks; offering remote, video call sessions to involve family and friends more consistently in therapy; closer working with therapists in the acute and community settings to ensure timing of the ICAP fits with an overall pathway for PWA; widening the interdisciplinary team so we can better address fatigue management, work based goals and physical exercise within the programme.

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The Salt Path

We don't often review best sellers in ACNR, still less travel books. But 'The Salt Path' is a bestselling travel book with a neurological twist. It is written by a woman married to a person recently diagnosed with Corticobasal degeneration. And for good measure, they have just contended with legal and financial catastrophe too.

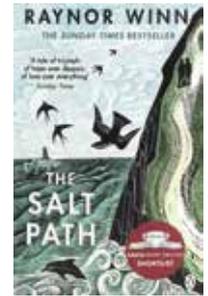
It is a medical book in the sense of showing the limitations of our profession. Perhaps the best that can be said for Medicine here, is that it comes out of the story better than the Law!

A point that's highly relevant to medical practice, however, is a recurring theme of *The Salt Path*: when you hit rock bottom, the only way is up. That's if you allow yourself to try, and are willing to risk that you might die laughing in the effort... What was that they said about the best medicine?

While Cornwall comes out better than either Medicine or the Law, the hero of the piece is an abstraction of the indomitable human spirit. It inhabits all of us from time to time, except the most unlucky. It certainly inhabits the travellers on 'The Salt Path' as they journey on; and one perceives that, having journeyed, this spirit will be all the stronger in the event of future travails.

I must say that Raynor Winn (et al!) provide a compelling (if not scientifically irrefutable) case for the benefits of positive action and of physical therapy, even for the ghostliest of neurodegenerative conditions. Of course, this is something which resonates with data presented more formally by our colleagues in Rehabilitation Science of late; that includes a paper in a very recent edition of the 'other' Clinical Neuroscience journal which comes through the door of many UK neurologists.

The Salt Path is a 'feel good' read for clinicians in Neuroscience; there can be life, even when there is no cure. I think its positivity might also benefit some of our patients, perhaps many of them.



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Spasticity: Early & Ongoing Management

As a fresh faced ST3 Rehabilitation Medicine trainee, I was eager to find a book to help me get to grips with the pathophysiology, assessment, and management of spasticity. Luckily, after attending a spasticity course in Liverpool (conducted by the lead author himself) I received this book; I can honestly say that I have used it every week since.

At a first flick through, the book is very pleasing to the eye with a bright, 'modern' colour scheme, lots of pictures, and an easy-to-follow layout with handy tabs (colour coded). Section 1 gives an overview of spasticity, explaining pathophysiology, diagnosis, and options for treatment. As a new trainee I found this part extremely useful, but no doubt my senior colleagues will already be familiar with this. Where the real strength of this book lies, however, is in Section 2. This section is a practical guide to ultrasound-guided localisation, injection of botulinum toxin, and post-toxin therapy measures. For example, the section on elbow flexors dedicates a page to each of the main target muscles to explain the dosing for each of the three main brands of botulinum toxin type A, with pictures and tips to help localise injection sites. The pages are uncluttered, and the logical order in which the muscles are presented means you don't have to keep flicking backwards and forwards. This is followed by the post injection management plan, with examples of exercises for the patient to perform until your next meeting.

Whilst this is all excellent, there are a few aspects to the book that could have been a bit slicker. The main thing that bothered me (and this might just be me being overly fussy) was that text is 'unjustified'. Don't worry, I just mean that the text lines vary in lengths down the the page. I have no idea why this bothered me so much; it seemed incongruous with the care taken in organising the actual content. Secondly, some of the pictures aren't as clear as they could be; this means that a few of the ultrasound pictures are a little difficult to interpret, while some pictures of the 'live' model have a greyish quality that makes it seem as if he had recently been pulled from the bottom of a lake. This aside, as already mentioned, I found and still find this book enormously helpful to my clinical practice. Since getting my hands on it, I really have used it every week to guide treatment, to help with injection dosing and localisation, and generally to give me the appearance of competence in front of my seniors!

In summary, has this book improved my management of spasticity? I'd certainly like to think so. Would I recommend this book to others? Definitely, especially for those who wish to gain confidence in the use of ultrasound for localisation. Do I pray for the health of the model? Yes, each and every night.



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