

## **SemaFoRe: Comparing word retrieval treatments for aphasia via a randomised crossover trial.**

### **Introduction**

Word retrieval difficulties are one of the most prevalent symptoms of aphasia and we now have good evidence from single-case studies and case series that some treatment methods for word retrieval result in improvements, at least with target words (see e.g. Nickels, 2002, for a review). However, important questions remain about predicting outcome for an individual given a particular treatment.

This study, SemaFoRe, is a pilot cross-over RCT contrasting two commonly used treatments, Semantic Feature Analysis (SFA; Boyle, 2010) with Repetition in the Presence of the Picture (RIPP). Both approaches have evidence to support them but they have some key differences: studies using SFA suggest generalisation to items not seen in treatment; it has a semantic focus and, potentially encourages clients to adopt a strategy to aid word retrieval. In contrast, RIPP has a phonological basis and is relatively simple therapy.

The SemaFoRe study aims to:

- (i) Obtain the information needed to design and power a definitive cross-over RCT.
- (ii) Compare the effectiveness of SFA and RIPP
- (iii) Evaluate whether the effects of either treatment generalise
- (iv) Explore prediction of benefit/gain.

Within the abstract we present data from an interim analysis of 9 participants who have completed all stages; by the time of the conference we will have final data from 23.

### **Methods**

People with aphasia were recruited at least 6 months post stroke. They needed to demonstrate some difficulty with word retrieval (defined as performance between 10-60% on a naming test). A range of background tests including language, executive function and memory, were completed with each person.

All participants were tested on their ability to name 150 pictures of everyday items. Naming of these items (alongside measures of connected speech and comprehension) were assessed over time. The naming assessment was completed twice prior to the start of therapy and then at each change point (post therapy and before second therapy). This gave 7 assessment points. The person assessing performance was 'blind' to which order the person was receiving treatment. Allocation to treatment order was randomly allocated.

For each participant items were randomly assigned to treatment 1 or 2 or no treatment, matched for pre-treatment accuracy, frequency, category typicality and length

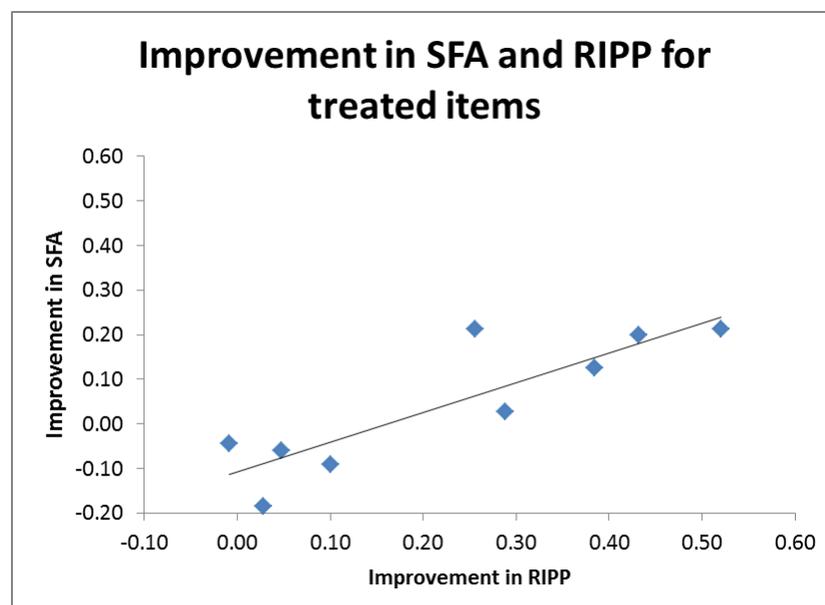
Treatment (both arms) was 2 sessions per week of 45 mins over 6 weeks and followed a clear and agreed protocol.

Treatment occurred between assessments 2 and 3 and between 4 and 5.

## Results

Interim results from the first 9 participants to complete the study show that overall there is significant improvement ( $z=5.61$ ,  $p<.0001$ ). This is significantly greater during the treated periods than the untreated periods ( $z=3.92$ ,  $p<.0001$ ). However, and unsurprisingly, there are also lots of differences between participants (homogeneity tests  $\chi^2(8)= 31.5$ ,  $p=0.0001$  and  $\chi^2(8)= 48.5$ ,  $p<0.0001$ ).

Overall RIPP is more effective than SFA ( $z=2.15$ ,  $p=.016$ , two tailed). There is no persuasive evidence of generalisation of effects from either SFA or RIPP. Interestingly, at this interim stage, of the 9 participants, 5 improved with both treatments, and 4 with neither. The degree of improvement with SFA is strongly related to the improvement with RIPP;  $r=0.87$ ,  $p<.001$ ), (as shown in the figure below), consistent with the two therapies being effective for the same participants and at the same locus.



The results from the complete set of 23 participants, which we will report in this talk, will necessarily be different.

## Discussion

With 23 participants, we believe this is one of the largest RCT in aphasia therapy where the treatment can be precisely described.

The preliminary data from the first 9 participants to complete the study show that, even though the two treatment techniques are very different, they are both effective but only for a sub-set of participants. RIPP is about twice as effective as SFA, and neither treatment induces substantial generalisation. The patients who benefit from RIPP also benefit from SFA, suggesting that the two treatments have effects at the same locus. This paper will examine whether this pattern is replicated within the remaining participants.

We will explore the determinants of the extent of improvement with all participants in the study, and the theoretical and practical implications of the results.

## References

- Boyle, M. (2010). Semantic Feature Analysis Treatment for Aphasic Word Retrieval Impairments: What's in a Name? *Topics in Stroke Rehabilitation*, 17(6), 411-422.
- Nickels, L. A. (2002). Therapy for naming disorders: Revisiting, revising, and reviewing. *Aphasiology*, 16(10-11), 935-979.