A Case Study on the Effect of Melodic Intonation in the Treatment of Neurogenic Stuttering

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There is little research on the effectiveness of MIT and neurogenic stuttering. However, as apraxia of speech has a high correlation with stuttering, it can be proposed that the use of melodics with an individual with neurogenic stuttering will be an effective avenue for improved verbal productions, in particular the reduction of repetitions. Rosenbek (1980) results showed the correlation between apraxia and stuttering as a neurological link within the frontal or frontal-parietal portion of the brain. Damage to the left brain may result in disruption of the neurological processes needed for fluent speech.

MIT is promising in neurogenic stuttering because of the melodic and rhythmic components utilized in intervention. The intention of MIT assists individuals with a non-fluent aphasia using intonation patterns and has been found to be successful with patients who have left-hemisphere brain damage with focus on the right-hemisphere. This allows for the individual to take better control of their verbal productions. Melodic Intonation has shown to be an effective means of decreasing blocks in stutterers. Blocks arise due to the tensing of the laryngeal musculature of the larynx (Movsessian, 2005). The assumption is that when the larynx is relaxed it reduces the blocks in with those individuals with stuttering. The premise is that if singing can reduce the tension and strengthen the laryngeal mechanism, then the individual can reduce or eliminate blocks. Despite releasing laryngeal blocks, persistent and debilitating repetitions may continue to impede verbal communications.

An individual with neurogenic stuttering is an ideal candidate for MIT because the individual can use language for expression, but not a verbal component. Access to the right hemisphere allows MIT to be effective in accessing the left hemisphere. MIT also naturally slows the individual's attempts at verbal productions. This

slowing and drawn out syllable productions can assist in the control of the verbal attempts.

Materials and Methods:

A 51-year-old male has been seen for 1-hour MIT intervention sessions 2 times a week, for 90 days and a subsequent intervention, also at 1 hour sessions, 2 times a week for 90 days.

The first sessions (90 days) began with review of the procedures in MIT with direct focus on laryngeal blocks, which prevented the participant from achieving any verbal production skills. The second set of session focused on the MIT procedures and direct implementation of verbal production for single words and two-word phrases.

In the first stage the researcher hummed the intoned word or phrase. At the same time, the participant tapped the rhythm and stress of each pattern, as modeled by the researcher. In the second stage the participant joined with the researcher in humming, and continuing with the rhythm from the first or previous step. The investigator initiated a singing of words or phrases to which the participant imitated. Once the participant achieved 80% accuracy, the participant was required to wait for a designated period of time before producing the modeled phrase.

The current intervention research addresses the effects MIT on neurogenic stuttering. The use of Melodic Intonation is the basis for this intervention research with an attempt to directly investigate if significant changes can be made with the use of MIT. The case is a 51-year old male, presenting with severe to profound verbal production deficits; persistent and debilitation repetition of the initial phoneme or syllable of all word production attempts.

The participant was seen for 1-hour Melodic Intonation intervention sessions 2 times a week, for 90 days. The participant was successful in producing two-word phrases with modifications to his pitch to resemble more natural speech patterns, with 60% accuracy, 70% of the time. The participant was successful in producing single words with modifications to his pitch with 83% accuracy, 75% of the time.

In MIT, final stage is used to transition to speech. However, this participant, at the conclusion of this intervention study, relied on a continuous intonation pattern to produce single words and two-word phrases; restricted to the current word and phrase list utilized in this intervention study.

General Guidelines

Slow rate of speech

Allowing more response time

Reducing the demands on communication and expectations

Easy onset

Relaxed posture

Word and Phrase List

Okay
Please
Hello
Yes
No
Hi
Bye
How
What
When
Who
Why
Where
Good
Now
Windy
Cold
Hot
Rain

Nice
Dinner
Lunch
Eat
Drink
Good night
No way
Who knows?
Good bye
Slow down
This way
Help me
I'm trying
Good idea
Come in
How are you?
Go slower
I am cold
I am hot
Hurry up
Feel fine

Let's go	Who is this?
Thank you	I need
Good day	I want
All done	Excuse me

Intervention scores for MIT					
	Baseline	**30 Days**	**60 days**	**90 Days**	**Change %**
Single Words	**.05**	**.18**	**.47**	**.83**	**.78**
Phrases	**.01**	**.10**	**.44**	**.60**	**.59**

Conclusions:

Results of the first 90 day intervention showed a significant increase in laryngeal blockage in which the participant is able to phonate with minimal struggle or strain. This allowed for significant progress in the participant's verbal fluency with the direct reduction in the frequency and number of repetitions produced. The participant demonstrated, with the use of MIT techniques and prompting by the investigator, productions of single words and commonly used 2-word phrases with 60% accuracy for intelligibility in 70% of attempts.

As several conditions may cause a neurogenic stutter, it is important to note that there is no single treatment approach that will effectively reduce or alleviate the speech patterns. However, the current study is promising for the use of MIT in the treatment of neurogenic stuttering cause d by a CVA.

Literature

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