The Effects of Parent Training in Pivotal Response Treatment and Continued Support through Telemedicine on Gains in Communication in Children with Autism Spectrum Disorder

Namrata Singh, BS, University of Arizona COM-Phoenix, Daniel Openden, PhD, SARRC, and Raun Melmed, MD, SARRC

Abstract

There is a growing recognition of the need for efficient, cost-effective treatment models for Autism Spectrum Disorder (ASD). This study examined the effects of continuous parent training and feedback for 3 months utilizing Pivotal Response Treatment (PRT) through telemedicine on responsivity to language opportunities in children with ASD versus a control group. 30 child-parent dyads were enrolled in this randomized control trial. Subjects were 24-60 months of age and met DSM-IV criteria for autism at the time of enrollment. All subjects received one week of intensive parent training at the Southwest Autism Research and Resource Center (SARRC) in PRT, an evidenced-based model targeting the core symptoms of ASD[1]. The treatment group received telemedicine feedback three times weekly for three months. The control group had a mean responsivity in functional verbal utterances of 64.3% and the telemedicine group had a 62.7% verbal responsivity rate prior to initiation of telemedicine support. At three month follow-up, the control group had a mean responsivity rate of 58.4% and the telemedicine group had a mean responsivity of 64.3%. This study showed no significant difference (p-value = 0.503) between the telemedicine and control groups. However, there was a trend towards increased verbal communication in the telemedicine group. Further studies to determine the utility of telemedicine and parent training in PRT in the treatment of children with ASD are thus recommended.

Introduction

The number of children diagnosed with autism is increasing steadily, with recent estimates of prevalence being 1 in 88 children worldwide[2]. Many of the treatments currently available are time consuming, costly, and rely heavily on behavioral interventionists who are also in short supply[3]. There is a need for efficient, cost-effective treatment models that includes families in the intervention process. Training parents as primary intervention agents requires less time from highly trained staff, while increasing the intensity and frequency of treatment.

There is some support for the use of telemedicine for diagnosis of behavioral disorders in general, but less research has looked at using telemedicine as a therapeutic tool for patients with autism[4]. This randomized control trial examined the effects of continued parent training and support in PRT via telemedicine over a three month period on verbal responsivity after 1 week of intensive parental training versus only one week of parental training in PRT.

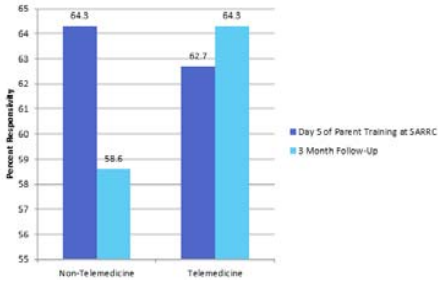
Families traveled from Tucson to Phoenix for initial training and then returned home for telemedicine support. The distance between Phoenix and Tucson is approximately 120 miles.

Methods

Thirty parent-child dyads who reside in Tucson, Arizona participated in this study by self-enrollment. Selection criteria for parents included: a) being the primary caregiver for a child with ASD between the ages of 2 and 5 years and b) no previous training in or experience with implementing PRT. Children were diagnosed with ASD within 6 months prior to enrollment in the study and DSM-IV criteria for autism were confirmed at the time of enrollment. The first phase of the program consisted of a one-week intensive parent training that was implemented at SARRC for five consecutive days at 5 hours per day. The second phase of the study was conducted in the training group only and utilized the Arizona Telemedicine Program[5] to provide enhanced parent training and continued support. Following completion of the initial 1-week intensive parent training program, parent child dyads returned home and "met" three times weekly with the parent trainer via telemedicine for 12 weeks. Verbal responsivity was examined post in-vivo parent training program and at 3 month follow-up. Responsivity was determined by the presence of functional verbal utterances including requests, refusals, comments, modeling, initiations and questions. Utterances needed to be functionally related to the task and include normal vocal loudness, body and facial orientation towards the parents or stimulus materials. Ex. Repeating "car" when it was modeled to the child before he was able to play with it.

Results

A total of 17 parent-child dyads were enrolled in the telemedicine support group and 13 parent-child dyads were enrolled in the control group. The control group had a mean responsivity of 64.3% at the completion of the 5 day in-house parental training in PRT. The telemedicine support experimental group had a 62.7% verbal responsivity rate prior to initiation of telemedicine support. At 3 month follow-up, the control group had a mean responsivity rate of 58.4% and the support group had mean responsivity of 64.3%. A t-test comparing responsivity between groups showed no significant difference (p=0.503).



Verbal Responsivity: This figure shows the percent responsivity in verbal communication just prior to the experimental portion of the study, and at the completion of 3 months of telemedicine support. Responsivity in the support group remains high and increases slightly, while the control group has a slight, but insignificant, decrease in responsivity at follow up.

Discussion and Conclusions

We hypothesized that the support group would have a significant increase in verbal communication and responsivity to verbal cues compared to the control group. The results do show a numerical increase in responsivity in the telemedicine support versus the control group at three month follow-up, though this difference is not significant (p-value >0.05). Limitations to this study may include researcher and participant bias, though participants were randomized to minimize this. Secondly, we recognize the small sample size, which may contribute to a low power in the study. Further research is recommended in order to explore the use of telemedicine as an adjunct to the treatment of children with ASD in the home environment. This research is crucial as numbers of children diagnosed with autism increase and qualified therapists are less available. Additionally, the use of telemedicine in providing therapy has cost-saving implications in future treatment of ASD.

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