Title: Social Communication in Tuberous Sclerosis Complex & Nonsyndromic Autism: A Closer Look at Joint Attention Skills

Authors: Lauren Baczewski, M.A., Wendy Shih, DrPH., Connie Kasari, Ph.D. & Amanda Gulsrud, Ph.D.

Introduction: Tuberous sclerosis complex (TSC) is a rare autosomal dominant disorder that confers high risk for both autism spectrum disorder (ASD) and intellectual disability (ID). Over 50% of infants with TSC will go on to meet criteria for an ASD (Curatolo et al., 2015). Children with TSC and autism (TSC+ASD) as well as those with nonsyndromic ASD demonstrate early deficits in nonverbal skills, particularly in the area of social communication (Kasari et al., 2006; Jeste et al., 2014). This deficit across syndromes is noteworthy in that nonverbal skills (e.g. requesting, gesturing, joint attention) are critical to the later development of language (Mundy et al., 1995). Research has shown that the earlier that children with neurodevelopmental disorders receive targeted treatment for foundational skills (e.g. joint attention), the better (Green et al., 2010; Curatolo et al., 2015). In order to select specific targets of intervention for children with ASD and related disorders, it is necessary to examine the skills and characteristics of the sample one intends to treat. The purpose of this study was to examine early cognitive and social communication profiles within a sample of children with TSC and children with nonsyndromic autism.

Method: The present study included 10 young children (range 14-34 months), including 5 with a diagnosis of TSC and 5 with idiopathic ASD. Participants were given the Mullen Scales of Early Learning (MSEL), Early Social Communication Scales (ESCS), and Structured Play assessment (SPA) to assess cognitive, social communication, and play skills. Children with TSC and those with ASD were matched based on their MSEL visual reception score (nonverbal) and then by chronological age. MSEL, ESCS, and SPA scores were descriptively analyzed in order to examine early cognitive and social communication skills in the sample. Initiations of joint attention and behavioral requests were coded from the video of the ESCS for each participant. Videos of the SPA were coded for play diversity, including number of simple, combination, pre symbolic, and symbolic play acts.

Results: Children with TSC demonstrated a greater number of initiations of joint attention and behavioral requests than children with idiopathic ASD (p = 0.04 and p = 0.06, respectively). Further examination showed that the majority of initiations made by those with TSC were low-level joint attention acts (e.g. looking between an object and the administrator’s eyes). Children with ASD initiated joint attention infrequently during the assessment, if at all. Children with TSC demonstrated significantly more pre symbolic play acts than those with ASD (p= 0.06). Additionally, children with TSC had significantly higher receptive language and expressive language (age equivalency) than children with ASD (p=0.02 and p=0.03 respectively). There was no significant difference in age between the groups (p = 0.11).

Discussion: Children with nonsyndromic ASD in our sample had low initiations of joint attention and lower level JA skills, which is consistent with existing literature documenting the social communication deficit in ASD (Kasari et al., 2006). Children with TSC had a greater number of initiations of joint attention compared to those with ASD. These initiations largely consisted of coordinated joint looks, a lower level joint attention (JA) skill. Together, these findings demonstrate a lack of higher level joint attention skills among those with TSC and those with idiopathic ASD in our sample. In terms of cognitive profile, results showed that children with TSC scored higher on receptive and expressive language compared to those with ASD. This finding suggests that those with TSC may have a different cognitive profile than those with idiopathic ASD, however the small sample included in this study limits our ability to generalize this finding. Future work should continue to examine behavioral similarities and differences between those with TSC+ASD compared to those with nonsyndromic ASD in hopes of informing specific targets of intervention.

References/Citations:


