

Case Report

Case Report: Effect of Multidisciplinary Intervention on Circumscribed Interests in Autism

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- Speech Therapy

Abstract

Circumscribed interests (CI) in children with Autism tend to interfere with participation in therapy and impede learning, memory and social development. However, scarce evidence has been generated on the effect of multidisciplinary intervention on CI, in the Indian context. A two year six months old boy, born of full-term Caesarean section (non-consanguineous marriage), without antenatal or postnatal complications and speech delay was presented at a multidisciplinary child development centre. Autism was diagnosed according to the fourth edition of Diagnostic and Statistical Manual (DSM IV-TR) with borderline social functioning (Social Quotient: 78) on Vineland Social Maturity Scale. During the intervention period, the child showed fixed interests and behaviors where most of his activities were executed in a 'pattern of threes' - for e.g. stacking three blocks, kissing first on left cheek and then right cheek and forehead, balancing only three balancing buffoons, writing only three-letter words and bringing only three chocolates or packets of chips, three toys or pencils. After receiving intervention, the child improved in his bonding with caregivers, self-help behaviors and group play (assisted). However, CI persisted at home. Intervention was modified to channelize the child's preoccupation into a hobby or meaningful activity using a combination of behavioral reinforcement and creation of social stories on the 'three characters', in order to strengthen thinking and decision-making.

ABBREVIATIONS

CI: Circumscribed Interests; OT: Occupational Therapy; ST: Speech Therapy

INTRODUCTION

Circumscribed interests are interests or preoccupations of individuals with Autism Spectrum Disorder that have unusual intensity and/or focus. These interests appear to increase in intensity over the life span and may interfere with the development of relationships with peers because the individual converses with others largely about his/her interest [1-2]. In young children, circumscribed interests may hamper the child's exploration, play and acquisition of skills.

Circumscribed interests (CI) have been relatively less studied than other developmental concerns in children with Autism [3]. CI tends to interfere with the child's participation in interventions such as occupational and speech therapy, and impedes learning, memory and social development. Interests could be as varied as vehicles, particular animals, electronics, schedules or numbers [4]. However, limited evidence has been generated in the Indian context, especially the effect of multidisciplinary intervention on

CI. This case report attempts to bridge some of these evidence gaps.

CASE PRESENTATION**Onset-duration-progress**

A two year six month old boy was born of full-term Caesarean section (non-consanguineous marriage), without antenatal or postnatal complications. Developmental milestones were age-appropriate, except for speech delay. The child's father had delayed speech development. Delayed socialization was reported in paternal uncle and cousins.

Presenting concerns

In 2011, parents visited a multidisciplinary child development centre in Mumbai, India and reported the child's difficulties in making eye-contact, communicating non-verbally, expressing words and expressing needs or discomfort. The child often talked to himself through neologisms and engaged in solitary play. Apart from the child's hyperactivity, parents reported his resistance to touch; toe-walking; fear of loud sounds; as well as biting and scratching behavior due to anger. The child could self-feed, self-dress and attended pre-school.

Evaluation

According to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR), the child was diagnosed with Autism, with borderline social functioning (Social Quotient: 78) on Vineland Social Maturity Scale [5-6]. On clinical evaluation, the child had hyperactivity, restlessness, impulsivity, tactile hypersensitivity, gravitational insecurity, sub-optimal body and joint awareness, difficulties in maintaining eye contact and poor sitting tolerance. A multidisciplinary intervention program was implemented in phases, lasting for six months, with periodic re-evaluation to monitor changes in functional and social skills.

Circumscribed interest

During the intervention period, the child showed fixed interests and behaviours where most of his activities were executed in a 'pattern of threes'; for e.g. kissing first on left cheek and then right cheek and forehead, stacking three blocks, balancing only three balancing buffoons, writing only three-letter words and bringing only three chocolates or packets of chips, three toys or pencils. It was revealed that these patterns reflected a strong liking for a Hindi movie and its three main characters. After receiving three chocolates, he named them 'R. Madhvan, Sharman Joshi, Aamir Khan' (names of the actors playing the three movie characters). On receiving a pencil, he wrote '3 Idiots' as depicted in the movie. The child's ability to write such a word, atypical for his age, was a manifestation of his circumscribed interest towards the characters of this movie.

Intervention

The child received Occupational Therapy (OT) sessions lasting 45 minutes each, twice a week, for two months. OT focused on reducing hyperactivity, impulsivity and restlessness to improve attention (sitting tolerance) to complete a task; sensory integration; improving gross-motor skills, social behaviour and self-care ability. Thereafter, the child received Speech Therapy (ST) sessions, twice a week focusing on: concept formation, following unidirectional commands, receptive vocabulary and expression of words, joint reference activity and vegetative function. Additionally, monthly parental counselling stressed on the importance of diet without preservatives; increased outdoor play in the evening and adequate night sleep; reduced television viewing (especially animation) and exposure to electronic gadgets. There is evidence to suggest the relationship between these practices at home and reduction of hyperactivity [7-11]. Counselling emphasized adherence of intervention activities at home.

Changes in functioning after intervention

After receiving intervention for six months, the child was evaluated at 4.2 years of age and showed improvement i.e. he could maintain eye-contact, respond to name-call and follow unidirectional commands. He became more comfortable with strangers and engaged in peer play. He developed one-word speech and expressed basic needs. However, pre-occupation with the three movie characters had increased. He showed a peculiar behaviour of buying three chocolates and a bottle of water, but never ate or drank from the bottle. Parents were advised to

reduce his exposure to television and any form of repetition at home. Techniques like distraction, negative reinforcement and praise on completing tasks without circumscribed repetitions, were used by therapists and parents.

After receiving further intervention, the child was again evaluated at 4.9 years of age. Improvements were noted in bonding with caregivers, self-help behaviours and group play (assisted). However, CI persisted at home. Intervention was modified to channelize the child's preoccupation into a hobby or meaningful activity using a combination of behavioural reinforcement and creation of social stories on the three characters, in order to strengthen thinking and decision-making. An example of a social story is described as follows: when the child focused on the three movie characters, a story based on a theme (e.g. a core human emotion like anger, fear or friendship) was constructed involving these three characters. Each character was assigned a specific role and interactions between the characters were narrated to the child. The child was asked questions to check his attention towards the flow of the story. At the end, the story provided a moral, which explained the meaning of the emotion and how the characters expressed it. Thus, the child's circumscribed interest was navigated towards a purposeful activity – in this case, listening and responding to a theme-based story. This helped the child to find meaning within the circumscribed interest. Thus, each time the CI manifested, its intensity was 'diluted' through the social story weaved around it. Thereafter, the child's behaviour of buying three chocolates and the bottle of water reduced in frequency (from daily to occasionally). He also started naming a triad of objects in a low voice, thus showing reduced intensity of the circumscribed interest.

DISCUSSION

CI led to substantial accumulation of information and interfered with the child's learning and social development, also cited by other researchers [12]. Evidence-based strategies to reduce CI include prior warning, engaging the child in interesting activities and removing environmental stimuli for CI, positive reinforcement, as well as reinforcing other functional behaviours as alternatives to CI [13]. Other strategies include transforming CI into useful hobbies [12-13], which showed results in the present case. However, such methods depend on a child's intellectual functioning. Variations in CI between children merit an individualized approach. Although the present intervention included OT, ST and counselling; the child was assessed trans-departmentally and thereafter the intervention goals were framed according to the child's specific needs. Thus, the intervention was individualized, relative to other children with Autism reporting to the centre.

Recent studies have indicated that CI may be channelized to effectively build socially appropriate behaviors in children [14]. Spencer et al. (2008), for example, used the Power Card Strategy to use these special interests of children with autism to encourage appropriate social skills. This strategy combines a story related to a social situation with an illustration from the individual's circumscribed interest, in order to teach an appropriate target behavior [15]. This is closely related to the 'social story' used to intervene in the present case. CI may also be used as a reward to motivate a child to engage in appropriate activities [16]. For

example, a child who finds it difficult to eat a variety of foods might be more motivated to taste a new food if the caregiver allows her to play with her favorite toy - a toy that could be her restricted interest.

However, in the Indian context, before using any of these strategies, it will be important to consider the intensity, type and duration of the specific CI. For instance, in the present case, social stories embedding the CI helped to channelize the child's attention and thinking; the CI per say was excessive, destabilizing and socially inappropriate and could not be used as a motivator. The features of a CI should be factored, also from the perspective of parenting styles of Indian caregivers i.e. before considering the usage of any 'favorable' CI as a motivator; it will be prudent to understand if parents can understand and agree with such strategies and incorporate them in daily routines.

There are examples of behavioral interventions within larger multidisciplinary teams to address CI. Prior behavioral intervention studies can be categorized into consequence- or antecedent-based intervention [1]. Thus, the child is allowed to access the CI contingent upon the occurrence of an appropriate behavior (consequence-based) or CI is embedded into structured activities to motivate the child to engage in appropriate behavior during those activities (antecedent-based). Such an embedded use of CI is consistent with the structured teaching intervention approach pioneered at Division TEACCH (Treatment and Education of Autistic and Communication related handicapped Children) [17]. Further studies with larger sample sizes should be conducted to evaluate the impact of multidisciplinary intervention for children with Autism having circumscribed interests in the Indian context.

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