Autism is a Complex Developmental Condition that Typically Manifests in the Children Life

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ABSTRACT The Clinical Test for Sensory Interaction in Balance (CTSIB) can be used to determine the effectiveness of an individual to utilize different sensory inputs. It examines body sway during quite standing less than six different sensory test conditions.

INTRODUCTION:

Autism is a complex developmental condition that typically manifests in the first three years of life, and often is evident much earlier. It causes impairment in three main areas: social understanding, communication, and imagination – more specifically in social imagination. Individuals with autism may show unusual responses to sensations. Any one or more of the senses may be affected. All these difficulties can be evident in their behavior and people with autism may therefore have non-typical ways of relating to people, objects and events in their environment. Many researchers believe that differences in cognitive processes, including executive function and sensory processing can cause discomfort, frustration and anxiety. These feelings may also be expressed in a variety of unexpected ways, such as withdrawal, engaging in unusual repetitive behaviors, and in extreme situations, through aggression and/or self-injury.

AIM:

To assess balance in children with Autism Spectrum Disorders

OBJECTIVES: To determine balance problem in autism children using modified CTSIB test.   To determine balance in normal children using modified CTSIB test, to compare the above with the age and sex matched normal children

REVIEW OF LITERATURE

Unusual Sensory Sensitivities in Autism (2012) in this article authors studied on sensory system in ASD children for that they took 30 young children with autism and their controls across auditory, tactile, visual, gustatory, and vestibular domains and they concluded that differences were found between the two groups.

Helmi Adly Mohd Noor, Faaizah Shahbodin, Naim Che Pee (2012) they studied on Serious Game for Autism Children for that they gave Technologies Classification in that technologies used in serious games development for autism includes 2D and 3D stand-alone and online computer game, virtual reality, mobile devices, touch screen computer and tabletop and interaction games , computer games , Virtual Reality, Mobile Devices, Touch Screen Computer and Table Top, Interaction and they concluded that games are very effective in the areas of therapy and education for autism children.

Kimberly Ann Fournier (2011) he studied on Static and dynamic balance control in children with autism spectrum disorders and they concluded that smaller lateral COP shifts were observed in children with ASD and may indicate instability or an alternative strategy for generating stance side momentum or lateral weight shif ting.

METHODOLOGY

Ethical clearance was obtained from the institutional ethical committee of Sumandeep Vidyapeeth.

Study design: Cross sectional study

Population: Children with ASD

Sample size: 11

Sampling technique: Convenient sampling technique

Group A : 11 subjects who were already diagnosed with ASD were recruited from Disha Autism Centre Vadodara.

Group B: For same age and sex match 11 normal children were recruited from Shankarpura Government high school near DGH.

DATA ANALYSIS

All the statistical analysis was done by using SPSS 17 for windows software. Descriptive analysis for both groups was also done. The inter group comparison for Modified CTSIB was analyzed by using independent t test. Independent t test was used to see the balance difference between two groups for Modified CTSIB.

Table 1: AGE DISTRIBUTION OF SUBJECTS IN BOTH GROUPS

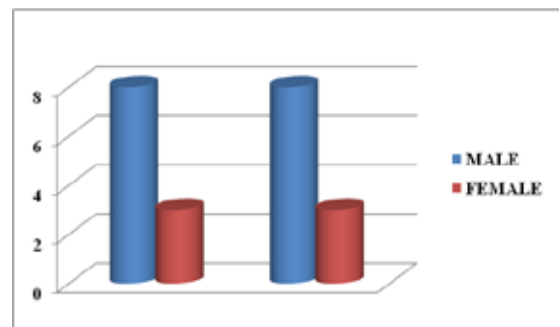| AGE	ASD GROUP	NORMAL CHILDREN GROUP
Mean ± SD	10.909 ± 2.809	10.909 ± 2.809
Range	7-14	7-14

The table shows mean and standard deviation of age for ASD Group and normal children Group.

Range of age also is given in table.

Table 2: Gender distribution

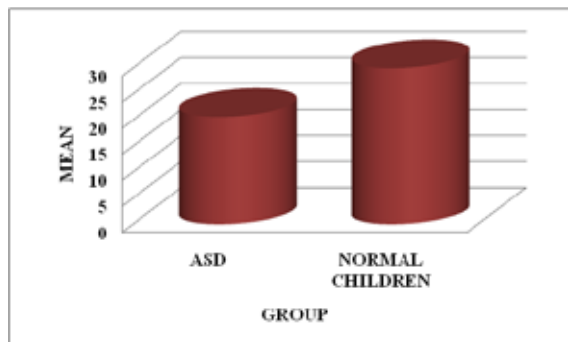| ASD GROUP (N=11)		NORMAL CHILDREN GROUP (N=11)	
MALE	FEMALE	MALE	FEMALE
8	3	8	3

Figure 1: Gender distribution

Interpretation: There were 8 males and 3 females in ASD group and there were 8 males and 3 female in normal children group.

Table 3: INTER GROUP COMPARISON ON FIRM SURFACE WITH EYE OPE

Modified CTSIB- eye open(firm surface)						
Group	Minimum	Maximum	Mean	Std. Deviation	t- value	p- value
ASD	16.000	27.330	20.630	3.542	8.795	0.000
NORMAL CHILDREN	30.000	30.000	30.000	0.000		

Figure- 2 INTER GROUP COMPARISON ON FIRM SURFACE WITH EYE OPEN

Interpretation: It shows the intergroup comparison of Modified CTSIB on Firm surface with eye open. Mean score of ASD group is 20.630 and normal children group is 30.000. The t value of Modified CTSIB is 8.795 and p value is 0.000 which shows that there is significant difference between two groups. It proves balance is affected in ASD children with eye open on firm surface.

Limitations of this study
• The sample size used for the study was small

Suggestions for further study
• Further studies can be conducted to assess effect of intervention for improving balance in ASD children. The sample of this study design was small and it can be done on larger sample.Further studies can be conducted with different age groups and gender

Conclusion
The study concludes that child who was already diagnosed ASD has problem in balance on firm surface with eye open and eye close and on form surface with eye open and eye close comparing with normal children. The purpose of this study was to assess the balance among children with Autism Spectrum Disorder and to compare with same age and sex with normal children. This comparison demonstrated for assessing balance difference in ASD children and normal children. The outcome measures used were Modified CTSIB on firm surface with eye open and eye close and form surface with eye open and eye close. The subjects were divided in group A (ASD children) who were already diagnosed and group B (normal children). All the participants were checked with Modified CTSIB.This is because of trouble of knowing where his/her body ends and an object begins.

Summary:
The aim of this study was to check balance among children with ASD and compare with same age and sex with normal children. The study was conducted on 11 subjects who were already diagnosed ASD and 11 normal children for compare same age and sex match. The subjects were divided into two groups, Balance were checked in both the groups: group A and group B. The main outcome measure used was Modified CTSIB on firm surface with eye open and eye close and form surface with eye open and eye close.The statistical analysis was done for collected data for descriptive testing by using SPSS 17 for Windows.

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