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SENSORY INTEGRATIVE INTERVENTION – PERSPECTIVE IN OCCUPATIONAL THERAPY: A CASE STUDY, ITS EFFECTIVENESS.

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Abstract
Objective:*This article presents a case report of a Child with Autism Spectrum Disorder having poor Sensory Processing and describes the disorders impact on child's Occupational Behaviour and the changes in the Occupational Performance during 20 weeks of Occupational Therapy using a Sensory Integrative Intervention.****Method:****A Diagnosed Autism Spectrum Disorder case was taken for this study and had undergone Sensory Profile and Skilled Observation. She was receiving Occupational Therapy using Sensory Integrative Intervention and was followed up for 20 weeks.****Result:****Notable improvement was noted in her Sensory Processing. Skilled Observation also showed Miss Aditi had progressed in all areas.****Conclusion:** *This study suggests that using Sensory integrative Intervention in Occupational Therapy is beneficial in clients with Autism Spectrum Disorder having Sensory Processing difficulties. Although these findings cannot be generalised, they provide preliminary evidence supporting the theory and the effectiveness of this approach.*

Introduction

Paediatric Occupational Therapist are encountering increasing numbers of children diagnosed with Autism Spectrum Disorder , a range of Pervasive Develop-mental Disability as defined by DSM V published in May, 2013 (American Psychiatric Association) , 2013.

Autism Spectrum Disorder is comprised of complex Neuro-developmental disorders that are characterized by severe and pervasive impairment in social interaction, significant in both verbal and non verbal communication skills, and demonstration of consistent patterns of repetitive or unusual behaviour (Levy, Mandell, and Schultz 2009). Sensory integrative deficits are inherent in Autism Spectrum Disorder, often producing maladaptive behaviours that inhibit participation in academic and social activities (Dunbar, Carr- Hartel ,Lieberman , Ricks 2012.).

The maladaptive behaviours often demonstrated by children with Autism Spectrum Disorder include aggression , violence , hostility, anger repetitive behaviour , self injury and screaming , isolation disengagement or removal of clothing(Hall & Graff 2012, Myres and Johnson). Treating the root of maladaptive behaviour may enable children with Autism Spectrum Disorder to organize stimuli from the environment and learn effective coping techniques. The Goal of Dr Jean Ayres- Sensory Integration Theory 1979 is " not to teach specific skills or behaviour, but to remediate deficits in neurologic processing and integration of sensory information to allow the child to interact with the environment in a neuro-adaptive fashion " (Myres & Johnson 2007) the therapist artfully engineers and adjusts the sensory quality of the environment, prompting self direction and play while facilitating adaptive response in motor, social, language and cognitive areas creating the " Just Right Challenge " and tapping the child's inner drive , Ayres 1972.

Purpose of the Study

To study the efficacy of Sensory Integrative Intervention in Occupational Therapy.

Case Description

My case Miss Aditi is 3 year old child, bought by her parents with a diagnosis of a Autism Spectrum Disorder as per CARS II ST = 37 , on MCHAT Score = 15 (high risk of autism), provisional diagnosis by the speech therapist DSL 2nd degree to ASD.

Cheif Complaints

Miss Aditi was bought by her parents with the complaints of not mingling with other kids, doesn't execute or comprehend for verbal commands, doesn't chew foods, doest try new foods, runs up and down when she is idle, distressed for hair cutting and tooth brushing, responds to name call (-02/10), dislikes messy things, doesn't participate in play ground activities, eye contact (-05/10).

The following chart shows the overall performance of Miss Aditi through Sensory Profile.

Sensory Profile

Components of Winnie Dunn's sensory Profile	**Sensory Profile 02/04/2019**	**Sensory Profile 19/08/19**
Sensory processing		
A. General processing	No section raw score	No section raw score
B. Auditory processing	Definite Difference	Typical Performance
C. Visual processing	Probable Difference	Typical Performance
D. Touch processing	Probable Difference	Typical Performance
E. Vestibular processing	Probable Difference	Typical Performance
F. Oral sensory processing	Definite Difference	Definite Difference

Note :Typical performance- issues that do not interfere much with daily activities and needs little intervention.

Probable difference-Probably has an issue, which interferes with life moderately and needs intervention.

Definite difference-Interferes with daily activities and needs daily intervention.

Quadrant Summary

Quadrant	**Sensory Profile 02/04/2019**	**Sensory Profile 19/08/19**
Low Registration	Definite Difference	Probable Difference
Sensory Seeking	Probable Difference	Typical Performance
Sensory Sensitive	Typical Performance	Typical Performance
Sensory Avoiding	Probable Difference	Typical Performance
Low Threshold	Typical Performance	Typical Performance

Skilled Observation

S.No.	SKILLS	02/04/2019	19/08/19	Comments
	GROSS MOTOR SKILLS			
1.	*Jumps with both feet leaving the floor at same time*	X	√	Emerging needs 20% of assistance
2.	*Jumps from step or small height*	X	√	initiated
3.	*Jumping forward*	X	√	Needs 20% 0f assistance
4.	*Stands on tip toes for 2-3 seconds*	X	X	
5.	*Walks up to 4 stairs without support , 1 feet per step*	√	√	
6.	*Runs in a coordinated way*	X	√	Not very fast
7.	*Runs well without falling*	√	√	
8.	*Walks and runs forward and backwards*	X	√	Can walk and run forward very well, she attempts to do backward as well
9.	*Climbs up and down from furniture without help*	X	√	Emerging, needs supervision
10.	*Begins to hop*	X	√	Needs 30% assistance
11.	*Rides tricycle*	X	√	emerging
12.	*Catches large ball against chest*	X	√	
	FINE MOTOR SKILLS			
1.	*Plays with water and sand*	√	√	
2.	*Consistently reaches for the grasps object with one hand*	X	√	
3.	*Uses tripod grasp on pencil or crayons*	X palmer supinate grasp	Modified tripod grasp	
4.	*Holds crayons with dexterity*	X	√	
5.	*Colours within lines*	X	√	Free scribbling
6.	*Draws circle accurately*	X	X	
7.	*Copies simple shaped, begins to copy letters*	X	√	Copies standing and sleeping line
8.	*Builds tower(up to 6 blocks)*	X	√	Needs verbal cues
9.	*Uses two hands to gather well one stabilizing paper and object and other manipulating and objects.*	X	X	
10.	*Snips with scissors*	X	√	initiated
11.	*Open and closes bottle caps*	X	√	
12.	*Uses small beads and pegs*	X	√	
13.	*Squeezes or pull play dough apart*	X	√	

14.	*Completes puzzles of 4-5 pieces*	X	√	
	COGNITIVE SKILLS			
1.	*Sorts shapes and colours*	X	√	Started performing simple cognitive board shapes and fruits
2.	*Can follow 2 or more directions*	X	√	
3.	*Able to complete puzzles up to 10 pieces*	X	X	
4.	*Plays simple board games*	X	√	Emerging
5.	*Names some colour and some numbers*	X	X	
6.	*Understands the idea of counting*	X	X	
7.	*Begins to count with numbers*	X	X	
8.	*Starts to understand time*	X	X	
9.	*Matches shapes and colours*	X	√	Shapes
10.	*Points body parts on a picture when asked*	X	X	Head , leg , stomach , nose
11.	*Uses chair or box for something he cannot reach*	X	X	
	PLAY SKILLS			
1.	*Likes to participate in messy activities*	X	√	
2.	*Uses objects for play(imaginary play)*	X	X	
3.	*Usually plays with toys without mouthing them*	√	√	
4.	*Enjoys playing with a variety of toys and textures*	X	√	
5.	*Enjoys physical play- swinging, jumping, running, sliding at playground.*	X	√	
6.	*Enjoys playing with a musical toys*	X	√	
7.	*Parallel play predominates*	X	X	
8.	*Creates art product with adult assistance*	X	√	Some times
9.	*Works puzzles and blocks*	X	√	Started doing simple board puzzles, shapes, fruits
10.	*Participates in circle time*	X	√	80% of time she sits in group
11.	*Associative play*	X	X	
12.	*Participates in organized gross motor games*	X	√	Needs some assistance

SOCIAL AND COMMUNICATION SKILLS				
1.	*Shows interest in peers*	X	√	Just started to mingle with other children
2.	*Begins cooperative play in small groups*	X	√	
3.	*Group play replaces parallel play*	X	√	
4.	*Engages in dialog of few words with others*	X	√	
5.	*Begins sharing toys*	X	√	
6.	*Enjoys clowning*	X	√	
7.	*Takes turn*	X	√	
8.	*Shy with strangers especially adults*	X	√	
9.	*Possessive of loved ones*	X	√	
10.	*Enjoys singing or dancing in groups*	X	√	

Occupational Therapy Intervention
Miss Aditi received 03 one hour session, per week for 24 weeks. One on one session that incorporated *Vestibular, Tactile* and *Proprioceptive* activities. Depending on Aditi's sensory needs, a variety of materials were selected during the treatment period. It was based in play- ***using swings, trampoline, brushing techniques and joint compression*** with session ranging from *High to Loose Structure* depending on her need. The sessions were to be *Self Directed* by Aditi which allowed her to make choice. Treatment session also allowed her to ease into *multisensory and movement based activities in a graded sequence* in order to comfortably explore new experiences .Functional play activities like jumping , playing in sand, simple matching games and constructive activities were included.

Result
Miss Aditi demonstrated improvement in participation in age appropriate activities, decreased for reactivity to movement (*vestibular*) activities and participation in age appropriate play ground equipments. Decrease oral sensory sensitivity and expanded her repertoire of food, improved participation in age appropriate fine motor and functional activities. During her therapy sessions, she progressed from unwillingness to participate in climbing and movement activities. She joyfully played on swings, climbing up and participated in a variety of sensory motor activities.

Although Sensory Profile is not designed as a post test assessment, it was again done after 24 weeks of intervention as a reassessment tool to determine any further areas of need for Miss Aditi. ***Auditory processing*** progressed from ***Definite Difference*** **to** ***Typical Performance. Visual, tactile*** and ***vestibular processing*** **progressed** from ***Definite Difference*** to ***Typical Performance*****.** The following changed have been noted in the quadrant summary, ***Low Registration*** shows ***Definite Difference to Probable Difference. Sensory Seeking and Sensory Avoiding*** has showed from ***Probable Difference*** **to** ***Typical Performance.***

The ***Skilled Observation*** comparison table shows Miss Aditi has progressed in all areas. Miss Aditi showed typical performance in all but the quadrant summary, ***Low Registration*** showed only a ***Probable Difference***, suggesting that poor sensory processing was no longer a major factor for Miss Aditi.

Discussion

This case contributes to the evidence for using Sensory Integrative Intervention within Occupational Therapy. Ayres clearly articulated in her Theory of Sensory Integration that inadequate sensory integration affects behaviour and development. She stated "if the brain does a poor job of integrating sensations, these will interfere many things in life. "Clearly Miss Aditi's participation, behaviour and development were adversely affected by poor sensory processing and thus the theory of Sensory Integration provides a basis for an intervention programme.

Limitation

This case provides information that can be useful for clinicians working with children with Autism Spectrum Disorder who have poor sensory processing, as it is a case report and thus results cannot be generalized to the population of children with autism spectrum disorder.

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