Structured Programs for Autism Therapy

Essay

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Shaimaa Said

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Lists of Abbreviations

Abbreviation	Meaning

ASD	Autism Spectrum Disorder
DNA	Deoxyribonucleic acid
DSM	Diagnostic and Statistical Manual of Mental Disorders
RRP	Rituals and repetitive behaviors
ADI-R	Autism Diagnostic Interview-Revised
AQ	Autism Quotient
GARS	Gilliam Autism Rating Scale
PDDST	Pervasive Developmental Disorders Screening Test
PDDST-II	Pervasive Developmental Disorders Screening Test Second Edition
CARS	Childhood Autism Rating Scale
STAT	Screening Tool for Autism in Two Years Old
ADOS-G	Autism Diagnostic Observation Schedule Generic
AD	Asperger's disorder
HFA	High Functioning Autism
CDD	Childhood Disintegrative Disorder
PDDNOS	Pervasive Developmental Disorder Not otherwise Specified
PDD	Pervasive Developmental Disorder
MR	Mental Retardation
LKS	Landau Kleffner Syndrome
PWS	Prader Willi Syndrome
WS	Williams Syndrome
SM	Selective Mutism
RAD	Reactive Attachment Disorder

ABA	Applied Behavior Analysis
PRT	Pivotal Response Training
DTT	Discrete Trial Training
SCERTS	Social communication, Emotional Regulation, Transactional Support
RDI	Relationship Development Intervention
DIR	Developmental Individual-difference Relationship-based model
PLAY Project	Play and Language for Autistic Youngesters
MAP	Michigan Autism Partnership
TEACCH	Treatment and Education of Autistic and related Communication Handicapped Children
AAT	Animal Assisted Therapy
U.S.	United States
PUFA	Polyunsaturated Fatty Acids
Mg	Magnesium
GI	Gastrointestinal
HBOT	Hyberbaric Oxygen Therapy
ATA	Atmosphere Absolute
MSCs	Mesenchymal Stem Cells
NK	Natural Killer
DC	Dendritic Cell
TMS	Transcranial Magnetic Stimulation
rTMS	repeated trains of Transcranial Magnetic Stimulation

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Introduction

Autism is a highly variable neurodevelopmental disorder **(Geschwind, 2008)**, that first appears during infancy or childhood, and generally follows a steady course without remission **(World Health Organization, 2009)**. Overt symptoms gradually begin after the age of six months, become established by age two or three years, and tend to continue through adulthood, although often in more muted form **(Rapin and Tuchman, 2008)**. It is distinguished not by a single symptom, but characterized by: (DSM-5 diagnostic criteria)

1. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history.
2. Restricted, repetitive patterns of behavior, interests, or activities.
3. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
4. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
5. These disturbances are not better explained by intellectual disability or global developmental delay.**(APA,2013)**

Social development: Autistic infants show less attention to social stimuli, smile and look at others less often, and respond less to their own name. Autistic toddlers differ more strikingly from social norms; for example, they

have less eye contact and turn taking, and do not have the ability to use simple movements to express themselves, such as the deficiency to point at things **(Volkmar and Chawarska, 2008)**.

Communication: Differences in communication may be present from the first year of life, and may include delayed onset of babbling, unusual gestures, diminished responsiveness, and vocal patterns that are not synchronized with the caregiver. In the second and third years, autistic children have less frequent and less diverse babbling, consonants, words, and word combinations; their gestures are less often integrated with words. Autistic children are less likely to make requests or share experiences, and are more likely to simply repeat others' words (echolalia) or reverse pronouns **(Landa, 2007)**.

- **Repetitive behavior :** Autistic individuals display many forms of repetitive or restricted behavior, which categorized as follow:**(Lam and Aman, 2007)**
- **Stereotypy** is repetitive movement, such as hand flapping.
- **Compulsive behavior** is intended and appears to follow rules, such as arranging objects in stacks or lines.
- **Sameness** is resistance to change.
- **Ritualistic behavior** involves an unvarying pattern of daily activities, such as an unchanging menu.
- **Restricted behavior** is limited in focus, interest, or activity, such as preoccupation with a single television program, toy, or game.
- **Self-injury** includes movements that injure or can injure the person, such as eye poking, skin picking, hand biting, and head banging **(Johnson and Myers, 2007).**

The etiology of autism is complex, and in most cases the underlying pathologic mechanisms are unknown. Autism is a hetereogeneous disorder, diagnosed subjectively on the basis of a large number of criteria. Recent research has investigated genetics, in utero insults and brain function as well as neurochemical and immunological factors. On the basis of family and twin studies, there appears to be a genetic basis for a wide "autistic syndrome." About a quarter of cases of autism are associated with genetic disorders such as fragile X syndrome or with infectious diseases such as congenital rubella **(Trottier et al., 1999).**

Neurochemical studies have investigated the role of serotonin, epinephrine and norepinephrine, since levels of these neurotransmitters are altered in autism, although other hypotheses implicate overactive brain opioid systems and changes in oxytocin neurotransmission. Autoimmunity may also play a role; antibodies against myelin basic protein are often found in children with autism, who also have increased eosinophil and basophil response to IgE-mediated reactions **(Trottier et al., 1999)**.

The diagnosis of autism is and has always been subjective and relies on meeting a defined number of criteria out of a large set. No single manifestation is pathognomonic, and some symptoms are also seen in other mental disorders, such as mental retardation, developmental dysphasia, obsessive-compulsive disorder, and learning disabilities **(Spiker et al., 1994).**

Diagnosing ASD is sometimes complicated because no medical test, blood test, or radiological image will quickly and definitively indicate that a person has one of the ASD diagnoses. An accurate diagnosis is based on an observation of specific behavioral characteristics across a variety of

environments. The behavioral characteristics typically used are listed in the DSM **(Dew and Alan, 2007).**

Autism has to be differentiated from other pervasive developmental disorders, mental retardation, hearing impairment, acquired epileptic aphasia (Laundau-Kleffner syndrome), Angelman syndrome, Williams syndrome, attention deficit hyperactivity disorder, Tourette syndrome, Tuberous Sclerosis, Prader-willi syndrome, schizophrenia and selective mutism.

Effective intervention and treatment is based on an accurate assessment of the presenting problem. The first step in treatment is to help parents try to identify what are the good characteristics of their child. Some will say 'He's cuddly and can be very sensitive at times' or 'She is lovable some of the time and is good when we go out'. Once the relationship between the parent and child is starting to improve the parent will be able to think more clearly about the goals of treatment **(Douglas, 2002).**

The majority of children and adolescents with autism can make significant gain. However, such progress doesn't occur accidentally. Improvement results from carefully formulated training programs and intervention strategies as said by **Powell et al., (2000)**.

- **Educational interventions** which may be comprehensive or non-comprehensive interventions.
- **Environmental enrichment**
- **Parent mediated intervention**
- **Medical management:** Only a very few medical treatments are well supported by scientific evidence using controlled experiments**. (Levy and Hyman, 2005)**

- **The most recent lines of treatment:** such as hyperbaric oxygen therapy, stem cell therapy and transcranial magnetic stimulation.

Aim of the Work

This essay puts a spotlight on the programs used in rehabilitation of autistic children in order to guide therapists in this field for better results and prognosis.

Definition,incidence and prevalence