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THE STATUS OF ORAL HYGIENE IN MENTALLY RETARDED CHILDREN

Dental Science

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ABSTRACT

Mental retardation is considered as a burden for family and society. About 500 million people worldwide are disabled. Approximately 2.1% of population of India is suffering from different types of disabilities. Mentally disabled form 0.2% of total population and constitute 10.2% of total disabled. It has been reported with poor oral health status than the general population. Preventive dental care for such patients should be considered more important than the general population.

Overview: This article discusses the various aspects of oral hygiene status of mentally retarded children to understand the importance of good oral hygiene for such patients. It also discusses various preventive measures that can be taken to improve the oral health such as plaque control, fluoride application, and application of pit and fissure sealant, etc. along with diet counselling and health education to caregivers. Article focuses on barrier in accessing dental care and various patient management techniques such as establishing a relaxed environment, communication skills to make the treatment acceptable for such pupils. Conclusion: It is utmost important to provide preventive dental care to such patients by overcoming the barrier which obstacles it. Before motivating the patients and caregivers, it is the dentist who has to be motivated first in fulfilling special health care needs of patients resulting in improvement of quality of life.

KEYWORDS

Mental Retardation, Oral hygiene status.

INTRODUCTION

Birth of a new child in a family is a time for rejoicing and celebration in a family. Parents have so many dreams and aspirations for their newly born child that birth of a child with mental retardation can be a traumatic and shattering event for a family. The feeling of grief and loss that the family goes through is caused by realization that the anticipated normal child they had waited for nine months was never born. The burden associated with rearing such mentally handicapped children usually affects whole of atmosphere of home including routine family life, emotional aspects and financial resources of family. Children suffering from mental retardation are considered as burden by their family members. Negative parental attitude leads to rejecting attitude towards mentally retarded children. This adversely affects the overall health of a mentally retarded child and invites a number of health problems including problems related to oral hygiene. Mental retardation is a condition which is characterized by the deficiency in all development of motor, cognitive, social, emotional, chronic medical conditions, and language functions. It is related to functioning of nervous system. Children with mental retardation may also be suffered from a variety of disabilities or psychiatric disorders. The status of oral hygiene of these mentally retarded children differed from individual to individual and depends on the degree and types of disorders. A poor oral hygiene causes various oral diseases and anomalies, which require diagnosis and treatment. They have a high risk of incidence of periodontal disease, malocclusion, drooling of saliva, macroglossia, fissured tongue, and high arched palate.[3] Normal facial morphology and its components are essential for aesthetics of the craniofacial complex [4]. Oral and dental anomalies have more prevalence in mentally challenged, leading to abnormal functioning of the stomatognathic complex [5]. A patients of mental retardation may be affected with related medical conditions such as cardiovascular anomalies, musculoskeletal defects, immune response deficiency, disturbances of sensation, visual perception defects, communication disability[6]. It is essential for a dentist to be familiar with the stomatognathic complex of these special children's. These special children are unaware of the normal oral hygiene maintenance aids to which various dental diseases are caused. They also have difficulty in understanding the benefits of dental procedures and their treatment plan [7]. In India, there is only a little data available relating to dental health in mentally challenged [8]. Oral health is an integral element of general health and well-being. Good oral health enables individuals to communicate effectively, to eat and enjoy a variety of foods, and is important in overall quality of life, self-esteem and social confidence. [9]

Hence, as a dentist we have to create an awareness among the mentally challenged society and have to impart and educate the parents of these special children for the maintenance of good oral status and to take proper preventive measures for any oral diseases. The principle aim of this study is to know the oral hygiene status of the mentally retarded children.

Mental Retardation – various American Associations-American Association on Mental Deficiency (1983), American Association on Mental Retardation (1992), American Psychological Association (1994), American Association on Mental Retardation now American Association on Intellectual and developmental Disabilities (2002) define the mental retardation and redefined it with time. AAMENTAL RETARDATION (2002) redefined mental retardation as "A disability characterized by significant limitations, both in intellectual functioning and in adaptive behaviour, as expressed in conceptual, social and practical adaptive skills, the disability originating before the age of 18 years". [10]

Epidemiology [2, 12-14]

About 3% of the world population is estimated to be mentally retarded-1.5 times more common among men than among women. Prevalence of severe mental retardation is about 3 per 1.000 population and 30 per 1.000 for mild mental retardation. High mortality among subjects with severe & profound mental retardation is due to associated physical disease.

It is more common in developing countries because of the higher incidence of injuries and anoxia around birth, and early childhood brain infections. According to the WHO, the true prevalence rate of total mental retardation in industrialized countries comes close to 3%"; in the United States rate is 1%-3%, whereas the Scandinavian countries claim that the 1 % figure is their true prevalence. In India, Mentally retarded population accounts for 0.44 million individuals and 11.34% of total disabled.

Etiology [11]

1. **Chromosomal abnormalities-** Down's syndromes, Fragile X syndrome, Klinefelter's syndrome (47, XXY), Turner's syndrome, Cat-cry syndrome, Prader-Willi syndrome and de Lange's syndrome
2. **Prenatal conditions associated with infections & exposure to toxic substances-** Cytomegalovirus infection, Toxoplasmosis, Herpes, Syphilis, Rubella, Human, Immunodeficiency Virus, prolonged maternal fever in the first trimester, exposure to anticonvulsants, alcohol, lead and mercury.
3. **Perinatal problems associated with-** Late pregnancy complications, diseases in mother such as heart and kidney

disease and diabetes and placental dysfunction, during delivery (labour) severe prematurity, very low birth weight, birth asphyxia, difficult and complicated delivery and birth trauma), neonatal (first 4 weeks of life) septicaemia, severe jaundice, hypoglycaemia.

4. **Postnatal problems (in infancy and childhood) -**Brain infections such as tuberculosis, Japanese encephalitis, and bacterial meningitis. As well as head injury, chronic lead exposure, severe and prolonged malnutrition and gross under stimulation.
5. **Metabolic disorders-** inborn errors of metabolism Pheny lketonuria, mucopolysaccharidosis, sphingolipidoses etc.
6. Malnutrition & trace elements deficiency (Iodine deificiency-cretinism)

Classification [15] The term "mental retardation" as mentioned in ICD-10 and DSM-IV classification systems is now referred as to intellectual developmental disabilities as per DSM-V classification systems. In addition, the parenthetical name (intellectual developmental disorder) is included in the text to reflect deficits in cognitive capacity beginning in the developmental period. Together, these revisions bring DSM into alignment with terminology used by the World Health Organization's International Classification of Diseases, other professional disciplines and organizations, such as the American Association on Intellectual and Developmental Disabilities, and the U.S. Department of Education.

Based on the 1983 AAMENTAL RETARDATION definition, the operational classification for persons with mental retardation is as follows :(Table-1) [7,12 -14)] According to ICD-10 guide for mental retardation, based on Severity of Retardation and Problem Behaviours, axis I is used to record codes from Section F7 of the classification. Severity of retardation is recorded with a second digit code (F70 to F79). [17]

F70 Mild Mental Retardation
F71 Moderate Mental Retardation
F72 Severe Mental Retardation
F73 Profound Mental Retardation
F78 Other Mental Retardation
F79 Unspecified Mental Retardation

Characteristics of Subjects with various types of MENTAL RETARDATION [11, 16-18,19]

1. Mild Retardation (IQ 50-70) - This is commonest type of mental retardation accounting for 85-90% of all cases. These individuals have minimum retardation in sensory-motor areas. Pre–school (0-5 years): Overall development is slower than peers. Developmental problems may not be identified until the child starts primary school. School age (6-15 years): Can master basic learning skills (e.g. reading, writing).Can acquire proper pre-vocational skills. Adolescence and adulthood (>16 years): Can integrate into community with assistance.

2. Moderate Retardation (IQ 35-50) -About 10% of mentally retarded come under this group. The persons with mild & moderate mental retardation can be educated & trained with proper training they can become independent and self sufficient. Their vocational rehabilitation is possible. Pre–school (0-5 years): Overall development is obviously slower than peers. Can acquire basic communication skills and simple self care abilities. School age (6-15 years): Can learn some practical skills for daily living. Can live independently to a certain extent in familiar environment and with proper support. Adolescence and adulthood (>16 years): Can learn to perform simple tasks in specially designed working environment.

3. Severe Retardation (IQ 20-35)- Severe mental retardation is often recognized early in life with poor motor development & absent or markedly delayed speech & communication skills. Profound Retardation (IQ below 20) This group accounts for 1-2% of all mentally retarded. The achievement of developmental milestones is markedly delayed. They require constant nursing care & supervision. Pre–school (0-5 years): Significant discrepancy in overall development when compared with peers. Some children may also have physical disabilities. Limited communication abilities and response to environment. School age (6-15 years): Delayed development in motor abilities. Can learn limited communication skills and simple self care tasks. Adolescence and adulthood (>16 years): Possess simple communication skills. Can master limited basic skills with special support

Clinical characteristics [6] Children with Mental Retardation usually look like any other children but some may have distinct features like - Small or Large head; Small stature; Protruding Tongue; Blunt features; Drooling; cannot walk with good co- ordination. Behavioral Characteristics. Brain damage results in skill deficit, which in turn causes challenges in acquiring age, appropriate behaviours, sometimes even manifesting maladaptive behaviors - Slow in response; Unable in making decisions; Difficulty in completing a task uninterrupted even for a short duration; Susceptible to aggressive reaction when demands are not met immediately; Difficulty in remembering; Difficulty in attending to their self - care needs; Difficulty in complying with group game rules or social norms. Educational Characteristics Delay in Development is a characteristic feature such as Slow Reaction; Slow in understanding and learning; Poor attention; Lack of concentration; Short tempered; Poor memory; Lack of co-ordination poor motor development; Slow in speech development.

Status of Oral hygiene in mentally Retarded children [20, 11, 21-24] Poor oral health can have dramatic effects on an individual's quality of life. In fact, it can cause difficulties with eating, speech impediments, pain, and sleep disturbances, missed days of work or school and decreased self-esteem. Individuals with MENTAL RETARDATION, for example, have poorer overall oral health and oral hygiene compared with the general population. The oral health and hygiene of individuals with MENTAL RETARDATION is associated with severity of MENTAL RETARDATION, etiology of MENTAL RETARDATION, residential arrangements and age of the individual. Dental problems are among the top ten limiting secondary conditions among individuals with MENTAL RETARDATION. One of the most common oral health problems of children and adults with MENTAL RETARDATION is dental caries. Studies, however, do not provide conclusive data on the prevalence of dental caries among those with MENTAL RETARDATION relative to the general population. Another common oral health problem among children and adults with MENTAL RETARDATION is poor periodontal health and poor oral hygiene with the prevalence estimates of gingivitis being 1.2 to 1.9 times of the general population. Malocclusion, traumatic injuries to teeth, Bruxism and impaired mastication has been also reported in literature.

Table 1: IQ ranges for different levels of mental retardation

Level of Retardation	IQ range	
	Stanford-Binet and Cattell Tests	Wechsler Scales
Mild	52-67	55-69
Moderate	36-51	40-54
Severe	20-35	25-39
Profound	0-19	0-24

Barriers to care [11,25]

Despite the high prevalence of health problems among individuals with mental retardation, very little is known about the quantity and quality of services they receive to meet their health needs. Many barriers to care have been cited to explain the low utilization of services and poor quality of care among individuals with mental retardation. The most compelling constraints include uncoordinated systems of health care, providers' lack of training and caregivers', lack of knowledge and abilities, lack of perceived need, inability to express need, and lack of ability for self-care, barriers to accessing and utilizing dental services, poor verbal skills and are restricted in their ability to communicate their needs. Fear and anxiety are the most common barriers to dental care, regular dental attendance; Lack of parental awareness is a major contributory factor for low dental attendance, the knowledge and skills of carers.

Screening and Diagnostic Procedure [18,21,29] -A systematic method for identification and screening of mental retardation should be followed which is developed by the NIMH (National Institute for the Mentally Handicapped). They include pre-natal, neonatal and post-natal diagnostic procedures:

(1) Pre-natal Procedures-

a. Blood tests for the pregnant mothers for any anemic condition,

diabetes, syphilis, Rh incompatibility and neural tube defects in the foetal stage.

b. Ultrasonography (during pregnancy) should be carried out in the second trimester of pregnancy to detect certain disorders, such as - neural tube defects, hydrocephaly, cerebellar lesions, etc.
c. Amniocentesis may indicate in cases of foetal chromosomal aberration, congenital metabolic errors, severe Rh incompatibility etc.
d. Foetoscopy
e. Chorionic Villous Sampling.

(2) Neonatal and Postnatal Screening and Diagnostic Procedure-

1. Blood and urine examinations in the neonatal period in all suspected cases and with a previous history of mental retardation in the family or cretinism, rickets, jaundice, Urine screening for metabolic errors -PKU (Phenyl Ketonuria)
2. Ultra sonogram- To detect displacement of brain midline structures, thickness of brain substance, intracranial haemorrhage, etc in the newborn.
3. Computerized Tomography - to detect congenital anomalies like holoprosencephaly, agenesis of corpus callosum, Arnold chiari malformations, etc.
4. Magnetic Resonance Imaging- for intra-cranial pathology and structural abnormalities.
5. Biochemical Tests - for identifying metabolic disorders
6. Electro Encephalography- for epilepsy, encephalitis, severe degree of mental retardation, etc

Treatment [26] By most definition mental retardation is considered a disability rather than a disease. Currently, there is no cure for an established disability. Although there is no specific medication for mental retardation, many individuals with mental retardation have further medical complications and may take several medications.

Prevention [16] Prevention of mental retardation is best achieved by avoiding marriages within close relatives with history of Mental Retardation, child bearing between 20- 30 years of age and restriction of family size.

A) Pre natal care: Maintain good maternal nutrition; Exposure to X-Rays should be avoided during first 3 months of the pregnancy; Ensure immunization against German Measles and Tetanus appropriately: Constant monitoring of high blood pressure; Avoid consumption of alcohol, drugs and tobacco.

B) Natal care: Delivery must be conducted by qualified health professional; immediately after birth the airway must be cleared. In case the baby is blue then he/ she must be put on oxygen immediately

C) Post natal care: Causes need to be detected early for necessary treatment by consulting a qualified Medical Practitioner immediately [21]

Prognosis [9,23] Most persons with intellectual disability have a life expectancy reaching into adulthood. Persons with intellectual disability who have major malformations and related health problems, more common in those with more severe levels of disability, may have shorter life expectancy based upon these conditions. Life expectancy for those with the more severe levels of intellectual disability is generally less than that for the general population. The decrease is greatest for those who are immobile, have profound intellectual disability, and are unable to feed or care for themselves. For those who were mobile, but non ambulatory, about 50% would be expected to survive to at least 20 years of age. The most common causes of death among individuals with mental retardation are cardiovascular diseases, respiratory illness and neoplastic conditions.

Management [25,29]

- A systematic method for identification and screening of persons with mental retardation should be developed.
- Examine patients by the first birthday; monitor tooth eruption patterns and malformations.
- Give due considerations for associated medical conditions, cardiac status and need for premedication.
- Care should be taken for increased gag reflex during oral examination.
- Monitor periodontal disease. Treat as needed and consider specialty referral if indicated
- Powered toothbrushes may be too stimulating for some children and should be recommended only after determining if the child will tolerate one.
- Consider prescribing Chlorhexidine or other antimicrobial agents for daily use.
- Some patients are good candidates for full orthodontic treatment. Maintain primary teeth as long as possible and consider space maintenance and orthodontic consultation for missing teeth
- Carefully move patients with atlantoaxial instability into the dental chair, giving special attention to the spine and neck. Use pillows to stabilize
- the patient and increase comfort, as directed by the caregiver
- Seizure management during treatment: Remove all dental instruments from the mouth. Clear the area around the dental chair. Stay with the child and turn child to one side. Monitor airway to reduce risk of aspiration. Note time seizure begins: if seizure continues >3 min call EMS - Danger of Status Epilepticus (potentially life threatening).

Management Guidance [27]

- Plan a pre-appointment (in person/ phone) to discuss patient special needs prior to the first visit. Discuss this with the parent or care provider-they know the child best.
- Schedule their appointments early in the morning.
- Talk with the parent or caregiver to determine the patient's level of intellectual and functional abilities and explain each procedure at a level the patient can understand.
- Use short, clear instructions and speak directly to the patient.
- Minimize distractions, such as sights and sounds, which may make it difficult for the patient to cooperate.
- Start the oral examination slowly, using only fingers at first. If this is successful, begin using dental instruments.
- Use the Tell-Show-Do approach when introducing new instruments or procedures.
- Reward cooperative behavior with positive verbal reinforcement.
- Develop trust and consistency between the dental staff and the patient. Use the same staff, dental operatory, and appointment time each visit if appropriate

CONCLUSION

A good mental health envisages one's ability to realize one's intellectual and emotional potential. Intellectual disability is caused by many genetic and environmental factors which hampers both cognitive functioning and adaptive behavior. The two major reasons are Mental retardation and Down syndrome. Individuals with Intellectual disability have plethora of clinical and oral manifestations which makes the diagnosis difficult and so thus management. Due to poor mental conditions along with various unmet barriers these individuals are more at risk of poor oral hygiene which manifests as increase in dental caries and poor periodontal status. Moreover as there is no specific treatment available prevention forms the mainstay of management. The oral treatment of patients with Intellectual disability should thus always be based on concepts of general health .A comprehensive and regular dental care by programme managers, health care professionals should be provided in order to assist maintenance of oral and overall health for this group with special needs.

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