Review Article

Indian Journal of Forensic Odontology
Volume 10 Number 1, January - June 2017
DOI: http://dx.doi.org/10.21088/ijfo.0974.505X.10117.5

A Pavilion to Know Better: ADHD

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Abstract

Oral hygiene plays an important role in children's overall health, functional capacity and social welfare. Special children may have compromised oral health because of low socio-economic status, other health conditions, lack of trained providers, lack of awareness and knowledge amongst care givers. Hence, the management of these, God's forgotten children is a task which needs special effort on the part of the dental surgeon. The dentist who plan the treatment of the special children should be skilled, should have knowledge about the condition from which the child is suffering and should be clinically equipped to handle any emergency if occurs during any dental procedure. the following review is an attempt to provide an insight into the condition of ADHD and its associated aspects along with the management of such children.

Keywords: CSHCN; ADHD; ICD Classification; Management.

Introduction

"Every child has a fundamental right to his total oral health" [1]

A child is a young human being who is not yet an adult; a person who is strongly influenced by the ideas and attitudes of a particular time or person [2].

By the middle ages, children started getting more attention especially as their heirs and son's of ruling family [3]. Children constitute around 38% to 40% our nation's population [1]. This statistical data also includes that population of children who are not normal as the peers of their own age group, known as "special health care needs children" or "medically compromised children" or "God's forgotten children". Any child can be termed as special child; if their parents report that their children "has a condition, that has lasted or is expected to last at least one year". They are categorised as special children because they cannot perform their daily activities on their own i.e. without the help of their parents or care givers. They make upto 12% to 18% of children world wide [4].

Until the enlightenment period, the birth of a disabled infant was perceived as a palpable sign of sin. Disability can be in any form such as at the body level, activity restriction at the personal level, and participation restriction at the person in society level [5]. In western cultures, from ancient Greece until the rise of modern medicine, Disability was often interpreted as evidence of God's dismay. So children with disabilities were often shunned away from their families, and treated in separate institutions.

As compared to girls, more number of boys has been reported as CSHCN, according to 2009 -2010, 17% of males and 13% of females. More children of ages 6-11 years and 12-17 years have been identified as CSHCN (18% in each group, than do children from birth to 5years that is 9%) [6].

The parents of 57% of children with special care needs (CSHCN) report that their child has difficulty with atleast one bodily function, 28% has difficulty with participation in activities and 42% report of

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Received on 11.03.2017, **Accepted on** 17.03.2017

behavioral and emotional difficulties [8].Commonly reported conditions are asthma (39%), ADHD(30%), and emotional problems(21%) [7].

Like all children those with special health care needs require preventive health care and dental services. In addition, CSHCN need a variety of their services to manage their abilities, promote their development [6,8].

The maintenance of good oral hygiene and oral health of such children is difficult and their dentition may be ravaged by caries and periodontal diseases. Hence the management of these, God's forgotten children is a task which needs special effort on the part of the dental surgeon [1].

The dentist who plan the treatment of the special children should be skilled, should have knowledge about the condition from which the child is suffering and should be clinically equipped to handle any emergency if occurs during any dental procedure.

So as to overcome the problems faced by the CSHCN and their families, it was first in 1950's, when deinstitutionalization began, and the children with disabilities were viewed with a different perspective. A federal law enacted in 1963, Public Law 88-156, provided new funding for children with mental retardation [6].

The Americans with Disability Act defines the dental office as the place of public accommodation. Failure to accommodate patients with CSHCN should be considered discrimination and a violation of federal and / or state law [9].

Discussion

WHO defined a handicapped child as "one who over an appreciable period of time is prevented by physical or mental conditions from full participation of the normal activities of their age groups including those of social, recreational , educational and vocational nature."According to AAPD (1996), A person should be considered dentally handicapped, if pain, infection or lack of functional dentition which affects the following:

- Restrict consumption of diet, adequate to support normal growth and developmental needs.
- Delays or alters the growth and development.
- Inhibits performance of any activity including work, learning, communication and recreation [10].

Classification of children with special health care needs [11]:-

ADHD (Attention Deficit/ Hyperactivity Disorder)

AD / HD is a chronic condition that affects the millions of children and often persists in childhood. It includes a combination of problems, such as difficulty in sustaining in attention, hyperactivity and impulsive behavior. Children with ADHD may also suffer with low self esteem, troubled relationship and poor performance in school [12].

Epidemiology [13]

Appears more prevalent in boys; the ratio of boys to girls is approximately 4:1 in epidemiologic surveys and 9:1 in clinic samples.

- 65% cases: in conjunction with one disorder of childhood
- 50% cases: particularly oppositional / defiant disorder
- 30-50% cases: conduct disorders
- 20-25% cases: anxiety disorders
- 15-20% cases: mood disorders
- 10-25% cases: learning disorders

Prevalence [14]

- 4%: children
- 2%: adults (there is 50% remission rate from childhood to adulthood)

Predilection [14]

Amongst children more common in boys than in girls;

Clinically significant symptoms are equally present in men and women.

Etiology [15]

Cause is unknown. Genetic factors as well as others factors affecting the brain development during the prenatal and early postnatal life are most likely responsible.

Neurobiological Features

- Functional MRI: frontal striatal networks in adults with ADHD and activity in the anterior in the cingulate gyrus in subjects with this disorder.

- Positron Emission Tomography: decreased frontal activity in affected adults and have indicated that mthylphenidate increases extracellular dopamine levels by blocking the dopamine transporter, particularly in the striatum

Developmental Course [14]

- *In preschool*

✓ Difficulty with quiet, focused activities;
✓ Trouble cooperating with children;
✓ Engage in less play than their peers;
✓ Have difficulty in managing transitions;
✓ Non-compliant with adult's requests;
✓ Less socially skilled than children of same age.

- *In Elementary School*

✓ Continue to experience conflicts with their peers;
✓ Trouble organizing school related tasks;
✓ General underachievement in school, even when they have intellectual potential to do better;
✓ Activities of daily living, such as grooming, hygiene can be of a struggle to them
✓ *Associated problems*: messy handwriting, difficulty with sleep, oppositional behavior and increased risk of accidents.

- *At School*

✓ Inattentive;
✓ Hyperactive and impulsive behaviors often leads to difficulties in completing projects and homework;
✓ They do not achieve their academic potential;

- *At Home*

✓ More conflicts with their parents than do adolescents of the same age;
✓ Tend to be immature;
✓ Get in trouble when not supervised;
✓ Have poor social skills;

- *In Adult Years*

✓ Higher risk of dropping out of school;
✓ Having marital problems;
✓ Greater risk of being fired from their job;
✓ Lower occupational achievement;
✓ Poor social skills.

Steps in Diagnosis of ADHD in Adults

- Assess current ADHD symptoms (within last 6months) using rating scales with adult norms.
- Establish a childhood history of ADHD.
- Assess functional impairment at home, work, in school and in relationships.
- Obtain developmental history, including during prenatal, childhood and school years.
- Obtain psychiatric history: rule out other psychiatric disorders or establish comorbid diagnosis.
- Obtain family psychiatry history, especially concerning learning disorders, attention and behavior problems, ADHD and tics. Enquire about all first degree relatives.
- Perform physical examination: rule out medical causes of symptoms or contraindications to medical therapy.

Diagnostic Assessment [13]

DSM-IV criteria (6 out of 9 symptoms should be present atleast)

✓ Inattention.
✓ Fails to finish tasks.
✓ Often does not seem to listen when spoken to.
✓ Does not follow thorough instructions.
✓ Often fails to give close attention to details or makes careless mistakes.
✓ Often has difficulty in sustaining attention.
✓ Often has difficulty in organizing.
✓ Often dislikes, avoids, and show reluctance to engage when sustained mental effort is required.
✓ Often losses things necessary for tasks.
✓ Often forgetful in daily activities.
✓ Easily distracted by extraneous stimuli.

Hyperactivity –Impulsivity (6 out of 9 should be atleast present)

✓ Hyperactivity.
✓ Often fidgets with hands or feet or squirms in seat.
✓ Often leaves the seat in situation where remaining

seated is expected.

- ✓ Often runs about or climbs excessively.
- ✓ Often has difficulty engaging quietly in leisure activities.
- ✓ Is often "on the go" acts as if "driven by the motor"
- ✓ Often excessively.
- ✓ Often has difficulty awaiting turn.
- ✓ Often interrupts or intrudes on others.

Medical Management [16,17] :

1. Behavior therapy
2. Drug therapy

Behavior Therapy

- Head on confrontation should be avoided.
- Simple instructions should be given with only to do, one at a time.
- Child should be rewarded for following routines.
- In school, children with ADHD should be placed in front of the class with predictable schedules.

Drug Therapy

- Stimulant(methylphenidate, dextroamphetamine and pemoline) should be given only morning/afternoon dose(low dose, night dose not required). It is effective in 75-90% of children. High dose may result in hyperactivity by stimulating the parts of cerebral cortex.
- Tricyclic antidepressants: used when there is unsuccessful response to stimulant medications.
- Low doses of antipsychotic drugs e.g thioridazine, resperidone.

Dental Management [15]

The current medication scheme should be discussed with both the parents and prescribing practitioner. It is often helpful to either change the dose or timing of medication to optimize the action at the time of the dental visit. Morning appointments may be more successful, as this may be related to the timing of the medication rather than anything else. Tooth brushing and controlling diet both require concentration, motivation and understanding, all of which can be problematic for the child with ADHD. Tooth brushing charts for the child to take home and mark off daily are more likely to be successful than verbal instructions to brush daily. Repetition is important in building up the child's self-confidence. Multiple short visits have a higher chance of success than single prolonged ones. It is important to realize that oral health is only of many priorities for the family of the child with ADHD.

Prognosis [10,13]

It may last through childhood to adulthood. Poor outcomes are most common in children who exhibit defiance and aggression towards adults and who have poor peer relationship and below average cognitive function.

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