

Proceeding

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Bandung, 11 - 12 Nov 2016
Holiday Inn Pasteur



PROCEEDING
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PREFACE

FDI Continuing Dental Education is an international forum for worldwide dentists to gather, share and exchange the latest science in dentistry. The speaker in this forum will present the update information in dental science. This FDI Continuing Dental Education is an excellence program in developing dental science. Therefore, this program has become our priority and need especially for dentist to develop and increase our knowledge.

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The Level Of Care Needs Abnormalities Of Teeth And Periodontal Tissues In Children With Special Needs

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ABSTRACT

Background: Some surveys have shown that children with special needs have a higher prevalence of caries and oral cavity hygiene level is low. Special needs children have a high risk of oral cavity health problems compared with normal pediatric population, because of the inability of sensory and intellectual. **Objective:** The purpose of this study was to assess the care needs of oral disorders children with special needs at schools (SLB) A and C in Bintoro Jember. **Material and Method:** The research method used cross sectional survey of 66 children attending the SLB A and C Bintoro, whether they live in a dorm or go off home. Examination and diagnosis at the level of oral hygiene, dental abnormalities and periodontal disorders, then do the percentages on every treatment is needed. **Result** : These results indicate that 80% needs to be done DHE, 16.6% fillings, scaling of 12.88%, 7.82% endodontic treatment, treatment of periodontal tissue and 7.82%. SLB children who require sealant on molar teeth is 15%. **Conclusion:** It was concluded that in children SLB action is most needed is DHE, and therefore able to prevent caries and other oral disorders.

Key words: children with special needs, caries, periodontal disorders, mal occlusion

INTRODUCTION

Children with specialist need or disability is child who has limitation of physical, mental, intellectual, or sensory in long time to interact with the environment and behave in society so that can experience a complicated problem and difficulty to fully participate and effective based on equal rights¹. In Indonesia, education of children with specialist need was performed in extraordinary school (sekolah luar biasa / SLB) that is separated based on its disability condition. SLB A is place of education for children with blindness, wheares SLB C for children with disability, such as mental retardation, down syndrome, cerebral palsy and also autism². Blindness is visual acuity less than 3/603. Prevalence of blindness

in population over ≥ 6 years occurred decrease from 0,9% (2007) to 0,4% (2013). In child 24-59 month occurred increase 2x fold from 2010 to 2013 on child with blindness and child with down sindrom from 0,12% (2010) to 0,13% (2013)⁴. The term "intellectual disability" (ID), formerly "mental retardation," refers to significant limitations in both intellectual functioning and adaptive behavior, with onset before age 18 years. ID is a type of developmental disability (DD), a broader category representing various severe chronic conditions associated with physical impairments, mental impairments or both that are identified during childhood⁵.

Children with disabilities have high risk to occurred the health problems in its oral cavity compared to normal child population⁶. The condition is caused by social status, education level, great of limitation to keep oral cavity health as outcome sensory and intellectual inability. In addition, parents and health workers lack of information, knowledge and care for children with disability⁷. The condition effected by sociodemografic, type and also severe its disability⁸. Some studies in children with visually impaired^{9,10} and children with disturbance of mental (cerebral palsy, autism, down syndrom)⁷, have oral health status lower compared to normal children population. Inability to visualize the plaque on tooth surfaces resulting in inadequate plaque removal and therefore the progression of dental caries and inflammatory disease of the periodontium of visual impaired patients¹¹. Many characteristics associated with IDD may contribute to an increased risk of experiencing oral disease. These include the presence of cognitive, physical and behavioral limitations that make it difficult to perform daily oral care and cooperate during dental visits⁵⁻⁹; medications that affect oral health ⁵⁻¹¹ and elevated rates of poverty⁵.

Persons with disabilities present with a range of conditions and levels of impairment. They need special dental care because they may require extra support to access dental services, partake in treatment, and derive full benefits from oral care. It may take more time to complete treatment for them. Some people with disabilities are incapable of carrying out obligations of a dental patient that is seeking dental care, keeping appoiments, making payments and complying with istruction in dental chair and with home care. They are dependent to a varying degree on others to make dental care decisions for them, to transport them to the dental office, and to perform or assist them with daily oral hygiene¹².

Dental services for disabled people should be to prevent dental diseases, which require proper planning and implementation of services. Record of oral health status is an importing to perform treatment planning for pasient with disability. The dental health care needs for persons with disability is defined as "any physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services or programs. Dental health care for individuals with special needs requires specialized knowledge acquired by additional training, as well as increased awareness and attention, adaptation, and accommodative measures beyond what are considered routine¹³.

Dental care needs are requirements of somebody on dental health services to prevent and relieve diseases and malformation. It can assignment as number of dental care needs that must be done in certain time to reach healthy tooth¹⁴. Good oral health is required

for disability because the severity of medical conditions and perceived general health are significantly correlated with dental functional status and severity of dental disease¹⁵. The aim of this study is to know level of dental care needs on oral cavity disease children with disability in SLB A dan SLB C di SLB Bintoro Jember.

MATERIAL AND METHOD

All of population (44 peoples) at SLB A (blindness) and (38 peoples) at SLB C (mental disorder), age between 6 to 19 years old were participate in this observational, cross-sectional and analytical study. The legal guardians of subjects agreed on their voluntary participation by signing an informed consent form. The examination was performed in the school, under natural light with mouth mirror, probe and sonde. Subjects were seated in ordinary chairs. A chip blower was used to dry the tooth and probing (with a straight probe) was used as the criteria for diagnosis. No radiographic examination was done.

Level of oral hygiene was evaluated used Oral Hygiene Index (OHI-S) (Greene and Vermilion). Assesment criteria OHI-S are : a. good (0-1,2); b. fair (1,3-3,0); c. poor, (3,1-6,0). To provide detailed data OHI-S were also examined Calculus Indeks (CI) and Debris indeks (DI). Oral health status was evaluated based on criteria of WHO¹⁶ using Caries experience (DMFT) (decayed, missed and restored permanent teeth).

The criteria are: a. Very low <1.2; b. Low 1.2–2.6; c. Moderate 2.7–4.4; d. High 4.5–6.5; e. Very high >6.5.

Periodontal disease was evaluated using the Gingival Index (GI) dari Loe and Silness. The criteria are: 0 = Normal gingiva; 1 = Mild inflammation, slight change in color, slight edema. No bleeding on probing; 2 = Moderate inflammation, redness, edema and glazing. Bleeding on probing; 3 = Severe inflammation, marked redness and edema. Ulceration. Tendency to spontaneous bleeding. Depth of fissure were examined to make planning preventive action. Result of studies the some index were used to assess dental care needs then analized with anava to know difference of groups. Appraisal of care needs level was based on WHO³ about criteria of care needs.

RESULT

Result of study on status oral hygiene showed that children with blindness (SLB A) have index OHI-S slightly higher than mental ratardation (SLB C) at 3,3 and 3,2 respectively and statistically not different significantly ($p>0,05$). All of OHI-S in two groups were bad criteria and 80% occured childrens in SLB A and 75% in SLB C. Criteria of OHI-S are in Table 1.

Table 1 seen that only 5% and 10% children with blindness and mental retardation have good oral status. If we performed deeper analysis to Calculus Index (CI) and debris Index (DI) showed children with blindness have score CI higher with bad criteria, wheares children with mental retardation have score of DI higher with bad criteria (Tabel 2)

Tabel 1. Scoring of OHI-S children in SLB A and SLB C

Scoring SLB A SLB C	
Good	5% 10%
Fair	15% 15%
Bad	80% 75%

Tabel 2. Score DI and CI in children of SLB A dan SLB C

Scoring SLBA SLB C DI CI DI CI	
Good	5% 7% 5% 20%
Fair	15% 13% 5% 10%
Bad	80% 80% 90% 70%

Tabel 3. Score Gingival Indeks in children SLB A and SLB C

Scoring SLB A SLB C	
0	Normal gingiva 15% 25%
1	Mild inflammation, slight change in color, slight edema. No bleeding on probing 40% 30%
2	Moderate inflammation, redness, edema and glazing. Bleeding on probing 40% 42%
3	Severe inflammation – marked redness and edema. Ulceration. Tendency to spontaneous bleeding 5% 3%

Table 4. Criteria of caries incidence (DMFT-Index) in children of SLB A and SLB C C

Criteria DMF-T SLB A SLB C	
Very low	<1.2 7% 10%
Low	1.2–2.6 10% 5%
Moderate	2.7–4.4 50% 30%
High	4.5–6.5 30% 55%
Very High	>6.5 3% 5%

Gingival Indeks (GI) was to know the inflammation at periodontal tissue and gingiva (Table 3). The incidence of caries in children of SLB A and SLB C showed description different, could be seen at table 4. After do analysis from all of dental health index, obtained level of care needs in children with disability in SLB A and SLB C (Table 5).

The above Table shows that care needs in children SLB A treatment of periodontal have high percentage, especially scaling, whereas in children SLB C need filling treatment at one surface. Preventive care such as fissure sealant was also showed high percentage in children SLB A and C. Not all of children require fissure sealant because tooth is not indicated to fissure sealant as outcome caries in the pit and fissure or the fissure not deep. Pulp treatment dan restoration (include pulp capping and pulpotomi) have high percentage too. Only 5% in SLB A and 10% SLB C were not care needs.

Table 5. Percentage of dental and periodontal tissue care needs children with disability in SLB A and SLB-C

Type	Criteria	Percentage	SLB A	SLB C
0	No needs care	5%	10%	
P	Preventive and treatment of caries (white spot)	1%	3%	
F	Fissure sealant	60%	50%	
1	No needs care	5%	10%	
2	Preventive and treatment of caries (white spot)	1%	3%	
3	Fissure sealant	60%	50%	
4	Veneer/coating	0%	3%	
5	Treatment of pulp and retoration	25%	40%	
6	Extraction	30%	20%	
7	Be requirement for others treatment (specialist) (scalling and periodontal treatment)	80%	69%	
8	Be requirement for others treatment (specialist) (scalling and periodontal treatment)	80%	69%	
9	Not recorded. The treatment is not include criteria above. 0 0			

DISCUSSION

After known that children with disability have high risk to disruption of oral health. Phisically and mentally are as a main reason occurence of the disorder. Some research is also proved that oral health status in children with disability lower than normal children, such as oral hygiene, prevalence of caries, incidence of caries, periodontal health and also mal occlusion. This study showed that children with blindness and mental disorder have poor oral health but the both groups have pattern different. Percentage of calculus index in children with blindness was higher than mental disorder. Inability to see plaque at tooth surface result debris accumulation and then occured mineralization so that is formed calculus¹¹. Saliva plays role of important on calculus formation. The saliva is a complex fluid containing a variety of mucosal host defense factors from the different salivary glands and the crevicular fluid. There are glucose and nitrogenous products, such as urea and ammonia, role of important on calculus formation. In addition, pH saliva and plaque were also influence calculus formation. Alkaline pH is important for deposition of calcium phosphate, thereby promoting plaque mineralization. Production of ammonia from urea result a increasing pH promotes calculus formation by increasing the saturation degree of calcium phosphate in plaque fluid^{17, 18}. Merinda, et.al, proved that saliva pH children with blindness tend normal e.i 7,2. Saliva pH that tend normal, may enable cause precipitation of calcium phosphate, so that easy to form calculus and slight experience demineralization in tooth. Therefore the research was also shown that incidence of caries in children with blindness lower than children with mental disorder. Factor of light was estimated influence low saliva flow in children with

blindness¹¹, but its report is limited. Light related to circadian rhythm are endogenous self-sustained oscillations with 24-hour periods that regulate diverse physiological and metabolic processes through complex gene regulation by "clock" transcription factors. Salivary glands have a peripheral clock mechanism that functions both in normal light/dark conditions and in the absence of light. Abnormal expression of clock genes has been found in patients with reduced salivary flow. Therefore postulate that a clock mechanism that implies direct or indirect regulation of key genes important for saliva glandula physiology may be altered in diseases with abnormal salivary flow¹⁹. If the high calculus formation in oral cavity spread to sub gingiva result periodontal disease. Therefore score of GI Index is 85% with criteria fair to very bad (inflammation of gingiva with probing or without probing).

In the study showed result that children with mental retardation have incidence of caries higher than children with blindness, e.i. average of DMFT are 4,2 and 3,3 respectively. In accordance with Duddu, et.al.¹⁵ that dental caries is the most prevalent disease among disabled children worldwide and dental treatment is the greatest unattended health need of the disabled. This may be related to low physical ability of individual in tooth brushing, less capable of taking care of themselves and are often missed by oral health campaigns and there is a higher prevalence of untreated dental disease in handicapped children than in normal children.. Some of the important reasons may be inadequate recall system, practical difficulties during treatment sessions, socioeconomic status, underestimation of treatment need or pain, communication problem and lack of cooperation.

Oral health is part integral of body health. Poor oral health has a negative impact on nutrition, digestion, the ability to chew on food, speech and general health of individual but children and adolescents with disability appear to have poorer oral health than others. Good oral health is required for them because the severity of medical conditions and perceived general health are significantly correlated with dental functional status and severity of dental disease. For persons with disabilities, the effect of dental disease on general health and function appears greater than for similar groups without a disability. Proper care is required to manage side-effects of medication, for example, dry mouth, gingival overgrowth and problems with speech, swallowing, and taste¹⁵.

Planning to do care in children with disability is important. It will relate to the necessary technical expertise, cost, time and specialist skill to do care. Children with disability need specially attention and care. One of which is make dental care needs in disability. We find 80% children with blindness require scaling and periodontal treatment whereas children with mental disorder need dental filling. Action of preventive such as fissure sealant need done to prevent dental caries. In addition action in the clinic, ²⁰Shaw et.al., said that home care is essential to an effective plaque control and oral hygiene for special children is dependent on quality of care given by parents and guardians. Parents can be taught various techniques to enable them to care for their children's oral health more easily and completely. It is well-known that systematic counseling and plaque control programs have a good effect on dental health and similar schemes have been shown to reduce the risk of dental disease in disabled children¹⁵.

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