

CLINICAL CONCERNS IN THE PROVISION OF DENTAL CARE FOR CLIENTS WITH MENTAL RETARDATION

Purpose of this Module

This module reviews the medical and dental problems encountered in the population with mental retardation (M.R.). Information on managing maladaptive dental behavior encountered with some patients with M.R. is also presented. However, more extensive discussion and information on use and limitations of restraints/protective devices and dental sedation with this population is presented in Modules 5 and 6. A brief review of appropriate modifications of preventive procedures is also included but additional information is presented in Module 11.

Learning Objectives

After reviewing the written and audiovisual materials, the participant will be able to:

1. Contrast the incidence of dental decay, periodontal disease and malocclusion among individuals with M.R. and the general population.
2. Describe two major medical problems often encountered in the MR population.
3. State the approximate percentage of individuals with MR who present a significant management problem in the dental environment.
4. Describe four special communication (behavior modification) techniques that aid in treating the mentally retarded patient.
5. Describe one typical dental restraint technique.
6. Describe the four major methods of patient sedation and list one drug typically used in each.
7. Describe two modifications of preventive practices appropriate for the population with mental retardation.

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ORAL HEALTH NEEDS

Oral health concerns may be categorized, for convenience, into three major groups; dental decay, periodontal disease, and malocclusion.

O Dental Decay

There is evidence to indicate that individuals with mental retardation on average do not face a major problem with dental decay.^{1,2,3} There is little doubt that persons with Down Syndrome experience a significantly lower decay rate than the general population.^{4,5} The reason for this is unclear, however a delay in tooth eruption, morphology differences (small teeth) and tooth spacing seems to be influential.⁶ In addition, institutionalized persons with mental retardation of all etiologic classes exhibit a lower decay rate.¹ Whether the inclusion of the sub-groups of institutionalized and Down Syndrome subjects is the reason for the low decay rate for the total M.R. group is unclear. There is also evidence that patients with cerebral palsy present a slightly higher decay rate than normal.^{7,8,9} Most of these studies have not divided this group into M.R. and non-M.R. sub-groups. In summary, one may assume that patients who are institutionalized or have Down Syndrome have a lower decay rate, patients with C.P. a higher decay rate, and the majority of remaining patients with mental retardation the same decay rate as the general population.

O Periodontal Disease

The evidence clearly suggests that individuals with M.R. experience a greater prevalence of periodontal disease than the general population.^{1,2} This increase is somewhat greater with those who have cerebral palsy and markedly greater with those who have Down Syndrome.^{4,10,11} The lack of proper oral hygiene undoubtedly contributes to the increased prevalence of this disease with this problem being especially prominent in the cerebral palsy group due to physical limitations.⁹ Further, some of the anticonvulsive drugs such as Phenytoin (Dilantin) create unfavorable periodontal conditions. Two additional factors influence the increase in periodontal disease

in the population with Down Syndrome. The first is the frequent presence of malocclusion and the second is the impaired immune system common in persons with Down Syndrome. Thus, periodontal disease acquires an increased importance with the M.R. population.

O Malocclusion

There is no clear evidence that the prevalence of malocclusion is greater among most individuals with mental retardation. Persons with cerebral palsy have a greater incidence of Class II malocclusions and anterior open bites, generally thought to be due to abnormal muscle physiology.^{12,13} The typical Class III malocclusion of patients with Down Syndrome is the result of inadequate growth of the maxillary, premaxillary and nasal structures of the face. In addition posterior cross-bites are common with this population. Aside from these two sub-groups, however, the prevalence of malocclusion should be considered the same for the M.R. and non-M.R. population alike.

O Other

The incidence of missing permanent teeth, delayed eruption, bruxism, enamel hypoplasia, hypocalcification and erosion is higher in the M.R. population compared to the general population.

MEDICAL COMPLICATIONS

There are fewer pertinent medical complications in the M.R. population, as a whole, than are often perceived. The major problems are the following:

O Cardiac disease

There is a high incidence of cardiac disease among the M.R. population especially patients with Down Syndrome and patients who are multiply handicapped.¹⁴ However, the treatment modifications necessitated by this condition are the same in all groups (i.e., accepted antibiotic regimens).

O Upper Respiratory Infections

Many patients with mental retardation, especially those with Down Syndrome and those who are institutionalized or bedridden, are prone to multiple bouts with severe upper respiratory disease.¹⁴ Except for certain special considerations such as sedative complications and patient positioning considerations, few precautions other than those used with all patients are necessary.

O Special Medications

Many patients with mental retardation have medications prescribed to control seizures, modify behavior, or relax muscle spasms. Ordinarily these drugs do not greatly modify dental treatment regimens, although caution is advised, especially in prescribing additional sedative medications.

O Seizures

Seizures are common in this population but are controlled in the vast majority of cases with anticonvulsant medication. A grand mal seizure in the dental office is a very rare occurrence and no special precautions are necessary other than preventing self-injury by the patient.

O Hepatitis/HIV

The incidence of patients who are hepatitis carriers is higher in this population, especially patients with Down Syndrome. HIV positive status is rare in this population since most of these patients do not engage in high risk behaviors. Meticulous attention to infection control procedures is a major concern in the institutional setting.

O Other

Obviously, physical and sensory limitations such as cerebral palsy, blindness, deafness, swallowing disorders, and other handicapping conditions complicate the provision of dental care to the population with mental retardation.

DENTAL MANAGEMENT PROBLEMS

The vast majority (approximately 70%) of patients with mental retardation residing in the community present little or no management difficulties. Only ap-

proximately thirty percent of these patients exhibit behavioral problems in the dental environment. Institutional dental professionals, on the other hand, provide treatment and preventive services to patients with severe behavioral management problems complicated by associated medical conditions, on a daily basis. Although the percentage of institutionalized patients with M.R. who present significant behavioral management problems is unknown and will vary among institutions, it is estimated that 50-70% of this population will require special management.

O Behavior Modification/Special Communications Techniques

- The patient with mental retardation processes both verbal and visual information more slowly than do persons with normal intelligence. Therefore *more time* must be set aside by the dentist and staff for any pretreatment explanations or instructions.
- As patients with mental retardation often have a short-term memory deficit, dental professionals should *reinstruct or re-explain* information more often at subsequent appointments than one would expect with a child or adult with normal intelligence. This total lack of recall of even simple procedures or expectations is a common characteristic.
- Patients with mental retardation have trouble with abstract terminology, therefore, any instructions should be as *simple and concrete* as possible in order to center the attention of the patient.
- Since persons with mental retardation often have difficulty with verbal information, *visual instructions*, before treatment, facilitate management compared with verbal information alone. It has been demonstrated with uncooperative patients with M.R. that visual demonstration of the proposed procedures results in increased cooperation. Whether this increase in cooperation is due to the differences in presentation (visual vs. verbal) or to the centering of attention is unclear.¹⁵
- As stated previously, many patients with mental retardation, particularly those with brain dam-

age, exhibit a behavioral syndrome characterized in part by hypermobility and hyper-distractibility. When these patients are placed in a relatively *non-stimulating environment*, greater cooperation results. This non-stimulating environment is one in which extraneous auditory, tactile and visual stimuli are reduced to a minimum.¹⁶

- The patient with mental retardation often has difficulty when placed in a new or unfamiliar environment (lack of stimulus generalization). Therefore, better cooperation is often obtained when the patient is provided *treatment consistently* in the same dental operatory and by the same dentist, dental hygienist and dental assistant.
- Perseveration is the continued meaningless repetition of words, phrases or certain physical movements. In order to counter the perseveration tendencies demonstrated by some individuals with mental retardation, demonstration of various parts of the dental equipment such as light switches and air/water syringes should be avoided.
- In an attempt to modify the effects of the experience and expectation of failure, *rewards are used extensively* with these patients. Rewards, usually verbal compliments for cooperative behavior are used with far greater frequency and for a broader range of behavior than with the patient with normal intelligence. The character of the verbal reward is dictated by the mental age and socialization level of the patient.
- Instruction prior to any procedure usually proceeds in easy steps. The blending of new or novel instruction with old or familiar information facilitates this process. "Shaping" or rewarding successive approximations of desired behavior is part of this process.
- The practitioner should also remember to direct the communication to a patient's social age. Social age reflects the socialization skills acquired and for an individual with mental retardation will lie somewhere between the mental age and the chronological age.
- Additional emphasis on communication modifications are indicated with the multiply handicapped patient. Visual feedback with the deaf and tactile feedback with the blind are helpful.¹⁷

O Restraints/Protective Devices (Refer to module 6 for more complete information)

With most children, physical restraints are rarely used and then only to gain attention so that verbal communication can be established. With the child or adult with mental retardation, restraints are used most often to prevent unwanted physical movements or to allow treatment when other techniques fail. Thus, restraints are used often with persons with physically handicapping conditions, especially cerebral palsy and those with the severe or profound retardation who exhibit difficult behavior and with whom verbal communication cannot be established. Likewise, the inability of a patient with M.R. to keep his mouth open sufficiently to allow dental treatment or his/her unwillingness to do so may be circumvented by using a mouth prop. The Molt® mouth prop is the most popular and effective choice of dental professionals. Restraints are never to be used in a punitive manner nor only as a convenience to the dental staff. Temporary restraints for dental services are the least restrictive option for those patients not amenable to a behavior modification approach outlined in the preceding paragraphs. The use of temporary restraints for medical or dental treatment is in no way analogous to the use of behavioral restraints to address general maladaptive behavior.

O Sedation (Refer to Module 5 for more complete information)

Sedative medication is recommended to facilitate management of certain patients with mental retardation. The medication should supplement, never supplant, other management techniques. With the majority of patients with mental retardation, medication is used to reduce anxiety or fear, thus creating an environment where learning the desired behavior can take place. In contrast to this, learning of desired behaviors is not generally expected with the person with profound mental retardation and the medication serves as an adjunct to other behavior management techniques such as restraint. The specific drugs of choice are usually based upon the experience and preference of the individual practitioner.

- **Inhalation analgesia** is helpful in minimizing anxiety or fear with many individuals who are mentally retarded. Nitrous oxide-oxygen analgesia is safe and convenient and also raises the pain threshold which is a valuable adjunct to treatment where only mild discomfort is expected (e.g. prophylaxis). Inhalation sedation is also often helpful when used in conjunction with other types of sedation regimens.
- **Oral sedation** is the most common and convenient method of administering sedative medications. It is also the most variable in effectiveness and in occurrence of undesirable side effects. The most common oral drugs used are Chloral Hydrate for young children and the anxiolytics, such as Diazepam, for adults. Since oral medications cannot be titrated, the possibility of occurrence of over sedation is of concern. The effectiveness of oral sedation is usually limited to mild and moderate behavior problems.
- **Intramuscular medication** is usually more effective than the oral route, but is less convenient to use and dosage also cannot be titrated. For those patients with severe management problems who will not take oral medication and for whom venipuncture is impossible, the intramuscular route of administration is the only alternative to general anesthesia. The most common drugs used are the Meperidine combinations and the major tranquilizers.
- **Intravenous medication** is the most effective and safest method of sedation of patients with severe maladaptive dental behaviors. The dose can be titrated and side effects and over sedation are less of a possibility. The most common intravenous drugs used are the anxiolytics used alone or in conjunction with a narcotic. The increased possibility of special permits needed to administer parenteral sedation decreases the likelihood of use of intramuscular or intravenous sedation by the general practitioner in the institutional setting.

O General Anesthesia

Only when other methods of behavior modification fail should general anesthesia be used. Most practitio-

ners agree that general anesthesia should be administered in a hospital setting.^{18,19} Thus, to avoid the psychological trauma to the patient and financial expense created by hospitalization, provision of dental care under general anesthesia should be the last resort, accomplished only after other methods have been considered or tried and failed. The presence of mental retardation does not modify the provision of general anesthesia except for certain accompanying medical conditions.

O Preventive Therapy (Refer to module 11 for more complete information)

Nowhere in dentistry is the practice of good preventive measures more important than in the care of the person with mental retardation. For a significant percentage of these patients, dental treatment is difficult because of management problems, therefore prevention is most important. Fortunately, a good preventive regimen for the client with mental retardation is not unique, and should emphasize the same measures as with the general population. This consists of reducing cariogenicity of the diet, establishing good oral hygiene, and providing complete in-office preventive measures. The Vipohlm study in Sweden demonstrated conclusively that the total amount of cariogenic food consumed, the number of times this food is consumed between meals, and the retentiveness of the food ingested are primary factors in causing tooth decay. Thus, dietary recommendations for these patients, as for the general population, should be aimed at eliminating or at least reducing each of these factors. One pertinent problem in controlling the carbohydrate intake of retarded children is the tendency of some parents/ guardians to use excessive quantities of sweets as pacifiers for maladaptive behavior. Dietary counseling is imperative in these cases.

Preventive measures are of utmost importance when planning for the oral health care of people who are mentally retarded.^{7,17} Once teeth are lost due to dental disease it is often difficult to replace them since many of these patients are unable to cooperate during lengthy dental procedures, or to properly use and care for an intraoral prosthesis. Furthermore, removable prosthodontic treatment is often contraindicated in this population due to the high incidence of seizure disorders.

Maintenance of good oral hygiene is difficult for many retarded individuals, as frequently they lack muscular coordination and recognition of the importance of brushing and flossing.¹⁸ In most instances, oral

hygiene becomes the responsibility of another person. It has been demonstrated that the use of an electric toothbrush may be easier to manipulate by the person brushing a patient's teeth and by a patient who accomplishes toothbrushing without help, especially those patients with cerebral palsy. The use of disclosing techniques is recommended for some of these clients who are fairly adept at oral hygiene procedures but is too difficult and messy for many retarded patients to use. Flossing, although often difficult, should be carried out if at all possible. A floss holder is very helpful with many of these clients.

As it is much more difficult to maintain effective home care for the retarded individual than for non-retarded persons, the professionally applied preventive procedures assume relatively greater importance. The preventive measures typically employed include sealants, topical fluoride applications, fluoridated water, antimicrobial mouth rinse, dietary counseling, periodic professional prophylaxis, daily oral hygiene, mouth guards, and protective helmets for those with seizure disorders.

Of primary importance is the daily maintenance of oral hygiene. Although daily oral hygiene activities are often mandated by state and federal regulations, oral hygiene among individuals with M.R. residing in state institutions is frequently inadequate.^{8,20-25} The oral hygiene status of the clients is directly dependent upon their physical and mental abilities,^{18,19} their cooperativeness,² and the workload and motivation of the support staff.^{24,25}

Until recently, the mechanical removal of plaque by tooth brushing has been the primary means available for daily oral hygiene. This procedure has proven less than optimal for the reasons previously stated.^{21,26} Within the past several years, adjunctive measures, namely chemical plaque inhibitory agents, have become common in the United States. Although several chemical plaque control agents have shown potential, chlorhexidine gluconate has been the most effective. Chlorhexidine was first used in 1954 in Great Britain as an antiseptic cream for skin wounds, and currently, more than 20 chlorhexidine containing products are available for a variety of antibacterial purposes.^{27,28} Mouth rinses with 0.1 percent to 0.2 percent chlorhexidine have been found effective in controlling supragingival plaque.^{29,30} The use of chlorhexidine oral rinse to reduce plaque and gingivitis in individuals with mental retardation has been advocated since 1973, particularly in Scandinavia.¹⁷

The efficacy of chlorhexidine has been established regardless of the vehicle used for delivery, e.g. mouth rinse, dentifrice, gel, or spray.²⁵ The selection of the vehicle becomes an important issue whenever the agent is used in special population groups. A mouth rinse may not be an appropriate vehicle if the patient is unable to rinse as prescribed, or experiences swallowing difficulties.² Likewise, a gel could be swallowed or aspirated. A chlorhexidine dentifrice may prove safe and effective.

More frequent clinical and radiographic examinations, when possible, are indicated for most mentally retarded patients in order that dental disease may be diagnosed and treated during the incipient stage. Thorough oral prophylaxis and the application of topical fluoride should be used. The utilization of pit and fissure sealants as a measure for preventing the development of occlusal caries should be a routine part of any caries preventive regimen.

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