Dental Care of Children with Special Needs Using Sedation

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The definition of sedation is that the state of depression of central nervous system, upon application of suitable medicaments which will reduce the anxiety of a child, thereby allowing the implementation of satisfactory dental treatment. Conscious sedation in dentistry achieved anxiolytic effects, decrease in fear and anxiety, reduction of pain perception, establishing cooperation with patient and enables a satisfactory dental treatment. Indications for sedation are:

1. Children with whom cooperation is difficult:
   - Behavior disorders
   - The presence of dental fear, anxiety and dental phobia
   - Disturbances in mental and physical development
   - General disease or condition (for example pathological reflex vomiting)

2. Children with needs of dental treatment:
   - Emergency Treatment
   - Complicated and long intervention in children

Some features of sedation are that consciousness is preserved, breathing is spontaneously and verbal contact is possible, the existence of anterograde amnesia and does not mean analgesia. It may be oral, inhalation, intravenous, intramuscular and rectal sedation.

The oral sedation involves drug preparation of a patient, 1 hour before the surgery or in the evening prior to the intervention, in order to reduce anxiety. The advantages are easy application, rare side effects and there is no need for venipuncture. While the disadvantages are unpredictable absorption from the digestive tract, a long latent period (15 - 30 min), the maximum clinical activity after 60 - 90 minutes, there is no possibility of the drug titration and the long effect. For that purpose, benzodiazepines are used:

1. Diazepam
   - For children 4 - 8 years old, 5 - 0.8 mg/kg bw (per kilogram of body weight)
   - In children, older than 8 years 0.2 - 0.5 mg/kg bw (per kilogram of body weight)

2. Midazolam
   - For children weighing less than 25 kg 0.3 - 0.5 mg/kg bw
   - Children above 25 kg 12 mg.

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Inhalation sedation involves the use of the gas nitric oxide with oxygen and is one of the most popular methods of sedation of children in the world, applied since 1846. While patient is in the dental chair, doctor sets intranasal mask through which pure oxygen is released and then gradually nitrous oxide is added (with titration) to the desired level of sedation.

Ratio of the two gas is 30% of N₂O: 70% O₂ and is applied with local anesthesia and intervention is performed. The advantages are that it is not necessary venipuncture, a latent period is 2 - 3 minutes; the maximum sedation is reached after 6 minutes. The recovery is fast and less painful interventions do not require anesthesia, due to the analgesic effects of nitrous oxide. The disadvantages are that it is necessary to have apparatus for inhalation sedation and mask for nose, hallucinations, also there is the possibility of gas leakage and personnel chronic exposure to gas, such as liver or kidney disorders and neurological disturbance. Within this method there are also some contraindications:

- Obstruction of the airways
- Sinusitis, Tonsillitis
- Pregnancy
- Psychotic state
- Patients with porphyria

The Intravenous sedation involves intravenous administration of sedatives in the form of a continuous infusion. Techniques:

- Mono sedation -sedative effect can be accomplished by application of a medicament, the most frequently administered is midazolam (midazolam)

- Combined technique which involves the use of different groups of medicaments. The most commonly applied technique Jørgensen (barbiturate + synthetic narcotic+ anticholinergic). With the application of the combined technique we can achieved deep sedation which represents the introduction of general anesthesia.

The benefits of this sedation are rapid effect (9 - 30 sec), the dose of drug may be easy controlled and regulated, not require any additional equipment, the recovery period is short and followed by anterograde amnesia. Shortcomings the shortcomings of intravenous sedation are venipuncture and complications by cardiovascular and respiratory tract. At our clinic sedation has not yet been applied.