



(CASE REPORT)



Autism and general anesthesia for dental care

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GSC Advanced Research and Reviews, 2024, 18(02), 283–285

Publication history: Received on 01 January 2024; revised on 11 February 2024; accepted on 14 February 2024

Article DOI: <https://doi.org/10.30574/gscarr.2024.18.2.0065>

Abstract

Autism is the fastest growing serious developmental disability. Infantile autism is associated with a characteristic cognitive, language and behavioral features. Autism spectrum disorders (ASD) have lifelong effects on areas of individual daily life functioning such as learning, relationships and independence. The future of anesthetic management of ASD will depend on how well we understand the etiology, psycho-social and medical issues with the disease. A wide spectrum of medical and behavioral symptoms is exhibited by children with autism, which makes routine dental care very difficult in them. Autism is a neurobehavioral and cognitive disorder characterized by impaired development of interpersonal and communication skills, limited interests, and repetitive behaviors. American Academy of Paediatric Dentistry's guidelines on Caries Risk Assessment has categorized them under High risk for physicians and other nondental health care providers and Moderate risk for dental providers. Attitude and knowledge of the oral health care professionals are of utmost importance while rendering oral health care to such children. The treatment rendered currently provides a long-term benefit for the patient. More focus had to be given for the long-term maintenance of oral health in special children. A 24-year-old autistic child with a history of seizures came to the operating room where he received general anesthesia for dental work. The awakening was particularly slow, as the patient's condition was characterized as severe autism with the corresponding medication, which interacts with the anesthetic drugs and makes awakening difficult.

Keywords: Autism; Anaesthesia; Dental; Epilepsy; Disability

1. Introduction

The prevalence of Autistic spectrum disorders (ASD) is estimated to be 1% worldwide. The majority of studies that examined sex differences in people with ASD found an increased risk in males, which is consistent with higher male prevalence for ASD in the general population. These results support the strong connection between intellectual disability, epilepsy, and ASD. The signature characteristics of autism are atypical development of behavioral and social skills, and the inability to communicate. Symptoms of autism include, but are not limited to poor social relationships, underdeveloped communication skills, repetitive behaviors, unusual interests and activities, variable degree of intellectual disability, avoiding eye contact, avoiding social contact (preference toward being alone), not understanding other people's feelings and needs, physical aggressiveness, self destructive behavior, and tantrums when provoked. The different types of treatments available are generally broken down into the categories of behavior and communication approach. Medications approved by the FDA to treat aspects of ASD are the antipsychotics risperidone (risperidal) and aripipazole (abilify). Risperidone is a novel atypical neuroleptic with favorable profile of side effects due to its unique pharmacological activity: it exhibits both potent dopamine and receptor blocking activity, as well as high affinity for alpha 1 and alpha 2 adrenergic receptors and histamine 5- HT3 receptor. These medications can help reduce irritability (aggression) and self harming acts [1-6].

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2. Case Report

A 24-year-old patient with a body weight of 70 kg, with autism and a history of seizures under treatment with Depakine 500 mg (therapeutic levels), Risperdal 4 mg, Seroquel 200 mg, Akineton 2 mg and Concor 5 mg was admitted to anesthesia for dental work. Patient was given intravenously: 2mg Dormicum, 0.1mg Fentanyl, 200 mg Propofol slowly intravenously and 100 mg Esmeron. After nasotracheal intubation with a 6.5 spiral tube, the patient was placed on mechanical ventilation with 50% oxygen and 50% air and sevoflurane 2.5% to maintain anesthesia. The ventilation model was volume control on Drager ventilators and positive end-expiratory pressure 4. The duration of anesthesia was 3 hours. After the end of the dental work, the patient was on 100% oxygen and the awakening was delayed to 40 minutes by administration of 500 mg Bridion and Anexate 0.5 mg. The patient maintained spontaneous breathing several minutes before extubation. In resuscitation he was drowsy for half an hour and then he started to communicate.

3. Management and outcomes

Anesthesia comes with significant adverse reactions such as: complete regression into autism, great difficulty coming out of the anesthesia, exceeding a normal time frame for “recovery”, developmental regressions. Risk factors for adverse reactions from anesthesia are: history of seizures, autism or other neurodevelopmental disorder such as ADD/ADHD, learning disabilities or Sensory Processing Disorder, preoperative respiratory problems, poor clinical condition of the patient prior to the procedure, undiagnosed or diagnosed mitochondrial dysfunction (disorder of energy production) such as mitochondrial oxidative phosphorylation (OXPHOS), MTHFR genetic defect. Many children with autism have a vitamin B12 deficiency, and nitrous oxide depletes levels of B12.

4. Discussion

Autistic children are considered difficult patients due to increased anxiety of patient and family members, uncooperative or combative behavior, or in extreme cases very violent behavior of patients. It is critical for the anesthesiologist to recognize these difficult cases and prepare for the necessary interventions beforehand. Following identification, there must be appropriate pre-anesthetic consultation and careful planning, which should include discussion with parents of the anesthetic plan and options.

5. Conclusion

Children with autism have multiple medical and behavioral problems, which make their dental treatment extremely difficult. Communication problems and poor mental capabilities are central concerns when treating children with autism; these children exhibit wide variations in their ability to cooperate during dental treatment. Children with autism who have mild to moderate mental retardation and an absence of severe behavioral problems can be treated successfully in the general practice setting. Nevertheless, behavioral problems like hyperactivity and quick frustration can hamper the provision of oral health care in patients with autism. Furthermore, the invasive nature of oral care may trigger violent and self-injurious behavior such as temper tantrums or headbanging.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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