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(CASE REPORT)

Autistic Spectrum disorder and Anaesthesia

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Abstract

One of the groups of patients which may require the greatest flexibility of approach is those with autistic spectrum disorder (ASD). ASD is a lifelong developmental disability, affecting four times as many males than females, which affects how a person communicates with, and relates to, other people and the world around them. Challenging behaviors may be triggered by the unfamiliar perioperative environment and may make anesthesia related procedures difficult or impossible. Children with more severe ASD may exhibit verbal or physical aggression, antisocial or disruptive behavior, temper tantrums, screaming, panic attacks, and self-injurious behavior, and may have aberrant responses to sensory stimuli. Although anaesthesia and sedation do not present a problem for most children with ASD, unpredictable regression in skills and behaviour is noted in a small number of patients after general anaesthesia. A 10-year-old child, 53 kg, with autism under treatment, came for a dental abscess and related dental work under general anaesthesia. The pediatric neurological assessment indicated hyperactivity and lack of cooperation. Post-operatively, during resuscitation, the child showed agitation and an attempt to withdraw oxygen, with the physical presence of his family environment.

Keywords: Autism; Anaesthesia; ASD; Disability; Epilepsy; Behavior

1. Introduction

Autism spectrum disorder (ASD) is characterized by deficits in social communication and interaction; restrictive, repetitive patterns of behavior and interests that may include inflexible adherence to nonfunctional routines or rituals; and hyper- or hyposensitivity to sensory input. The prevalence of Autistic spectrum disorders (ASD) is estimated to be 1% worldwide. The incidence of autism is about 0.2%. One of the groups of patients which may require the greatest flexibility of approach is those with autistic spectrum disorder (ASD). ASD is a lifelong developmental disability, affecting four times as many males than females, which affects how a person communicates with, and relates to, other people and the world around them. This complex mental disability is about four times more prevalent in males but is more severe in females. It manifests during the first 3 years of life. It is important to recognize that for almost all cases, genetic testing is unlikely to establish a diagnosis of autism in the absence of careful clinical evaluation, since Fragile X Mental Retardation–1 gene, maternally inherited 15q11-q13 duplications, and other syndromes greatly increase the risk for autism, but do not lead to autism spectrum disorders in all cases. Epilepsy is an enduring predisposition for generating seizures which is active in approximately 0.4%–0.8% of the population. 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 [1-8].

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2. Case Study

A 10-year-old child, 53 kg, with autism under treatment, came for a dental abscess and related dental work. The pediatric neurological assessment indicated hyperactivity and lack of cooperation. Without cerebellar semiology, pyramidal and extrapyramidal involvement, as well as without neurodermal spots. His gait was normal, with no scoliosis present. Medication included Sir. Risperdal 0.75 ml, Melatonin spray 2 mg. Preanesthesia was done with 8 mg of Dormicum intranasally 20 minutes before induction into anesthesia. Anesthesia was induced with 0.1 mg Fentanyl, 180 mg Propofol and 50 mg Esmeron. An additional 0.1 mg of Fentanyl was given and anesthesia was maintained with 6% Desflurane in a mixture of 50% oxygen and 50% air. The child was mechanically ventilated on a Drager ventilator and volume control ventilation model. The duration of the surgery was 2.5 hours and the awakening, with 100% oxygen, took place in 15 minutes with the administration of Bridion 150 mg. Post-operatively, during resuscitation, the child showed agitation and an attempt to withdraw oxygen, with the physical presence of his family environment.

2.1. Management and outcome

Many children with special needs may attend hospital for investigations, medical management, or surgery. They may exhibit high levels of anxiety when faced with hospital treatment, and may have difficulty conforming to the usual pattern of care. In extreme cases, children may become so uncooperative that their procedure is postponed or abandoned, or can only be undertaken with the use of heavy sedative premedication or restraint. Anesthesia providers generally are aware of the prevalence of diagnosed ADHD and the various drugs these children might be on. Autistic children might also be on stimulant or antipsychotic drugs; therefore, they must consider specific, necessary anesthetic considerations. These drugs are combined with certain anesthetic drugs and an increase in central nervous system depression might result. Recommendations include good hydration, minimal fasting, care with Hartmann's solution (due to elevated blood lactate levels), maintenance of normal blood glucose, body temperature and acid–base balance, and avoidance of oxidative stress.

3. Discussion

Although there is a range of severity of ASD, most children with ASD are uncomfortable with or upset by unexpected or new situations. Challenging behaviors may be triggered by the unfamiliar perioperative environment and may make anesthesia related procedures (eg, application of a face mask for induction, intravenous catheter placement, application of monitors) difficult or impossible. Children with more severe ASD may exhibit verbal or physical aggression, antisocial or disruptive behavior, temper tantrums, screaming, panic attacks, and self-injurious behavior, and may have aberrant responses to sensory stimuli. A goal for perioperative care should be to avoid these difficulties, for patient comfort, and to avoid negative associations with the hospital environment.

4. Conclusion

Although anaesthesia and sedation do not present a problem for most children with ASD, unpredictable regression in skills and behaviour is noted in a small number of patients after general anaesthesia. It may be appropriate therefore to adopt an anaesthetic technique suitable for patients with mitochondrial disease.

Compliance with ethical standards

Statement of informed consent

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

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