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### Behavioral changes in children receiving anesthesia

Anesthesia may alter children behavior in many forms including preoperative anxiety, postoperative delirium and postoperative negative behavior. Up to 40 – 50% of children experience high levels of anxiety in the preoperative period, which peaks during mask placement resulting in increased postoperative pain, longer times to discharge, higher rates of emergence delirium and increased postoperative negative behavior. Emergence delirium is a dissociated state of consciousness in which the child is inconsolable, irritable, uncooperative, thrashing, crying, moaning and do not recognize familiar objects. It is usually self-limiting occurring mostly in preschool children who has high intensity of anxiety and receiving sevoflurane or desflurane. Several preventative measures have been tried including propofol, Ketamine,  $\alpha_2$ -Adreno-receptor agonist and fentanyl. Treatment options are fentanyl, propofol, midazolam and reuniting with parent. Postoperative negative (maladaptive) behaviors includes nightmares, waking up crying, sleep disorders, disobeying parents, separation anxiety, temper tantrums, new-onset enuresis. It occurs in children between 6 months to 4 years, more in impulsive children with poor social adaptability who are shy and their parents has increased anxiety. Parental behavior and level of anxiety during the preoperative period have been found to have a strong influence on children's anxiety levels. Parents who use emotion - focused behaviors (reassurance, apologies, empathy, and empathetic touch) are also more likely to elicit distress from their child. In comparison, parents who use distracting behaviors (non - procedure related conversation and humor) or encourage the use of coping skills. There is no evidence to support parental presence during induction. *Pain, inpatients* and hospitalization > 4 days are risk factors. Elective outpatient surgery using mask induction of halothane  $\rightarrow$  genitourinary surgery has the most negative postoperative behavioral changes and pressure-equalizing tube placement has the least postoperative negative behavioral changes. Reduction of postoperative maladaptive behavior. Premedication reduces anxiety and stress, reduces negative postoperative outcomes such as emergence delirium, reduces postoperative pain and enhances neuro-humoral response to stress. However, it potentiates sedative effects of opioids and there are conflicting data about its efficacy in reducing the occurrence of negative postoperative behavior. Midazolam exerts a dissociative effect on memory by inhibiting explicit memory while implicit memory is preserved. It may potentiate POBD by not protecting the child from implicit memory of perioperative events with a negative and emotional content. Clonidine (4  $\mu$  g/kg) is superior to midazolam (0.5mg/kg) in quality of mask acceptance, preoperative sedation scores, trend to better recovery and higher degree of parental satisfaction. IM ketamine 4mg/kg, in extremely anxious and uncooperative children who refuse to take premedication orally such as autistic might be helpful. Melatonin was as effective as midazolam in reducing anxiety, lower incidence of emergence delirium at 10 min and lower incidence of sleep disturbance at 2 weeks postoperative.

### Biography

Hany Mohamed Elzahaby is the Professor and Head of Anesthesia, Intensive Care and Pain Management Department, Ain Shams University, Egypt. His achievements include: Head of Pediatric Anesthesia Unit, Ain Shams University, 2010-2018, Specialist Registered in Anesthesia, United Kingdom 2007, Consultant Anesthetist, North West Armed Forces Hospital, Kingdom Of Saudi Arabia 1999-2007, Degree of Doctor in Anesthesia, Ain Shams University, 1994, Fellowship in Anesthesia, University of Iowa, United States of America 1992-1994, Master Degree in Anesthesia, Ain Shams University, 1989, Bachelor Degree in Medicine and Surgery, Ain Shams University.

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