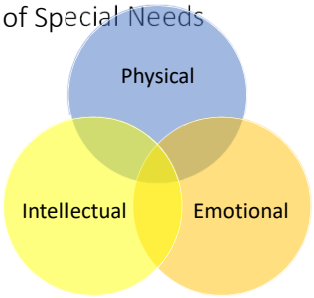
Anesthesia for the Special Needs Patient

Jesse Aron, MD

1

Definition of Special Needs



2

3

4

But also know your limits!

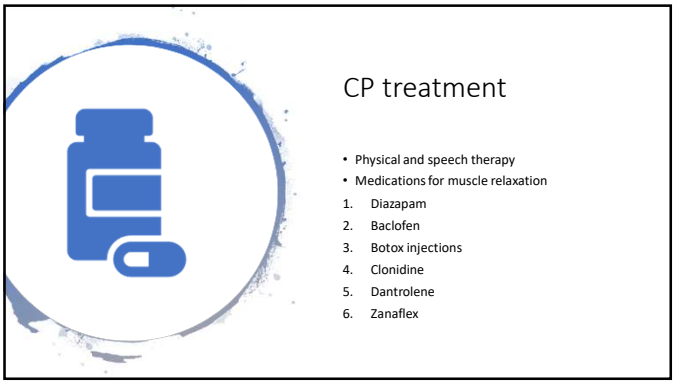
5

Cerebral Palsy

- Group of movement disorders that appear in early childhood
- Abnormal development of cerebral cortex areas controlling movement, balance and posture
- Cause(s) is/are unknown but related to pre-term birth and low birth weight
- May include intellectual impairment and/or seizure disorders
- Different subtypes

1. Spastic
2. Ataxic
3. athetoid

6

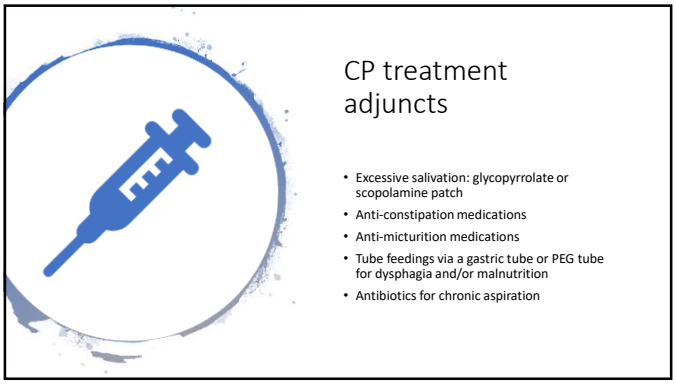


CP treatment

- Physical and speech therapy
- Medications for muscle relaxation

1. Diazapam
2. Baclofen
3. Botox injections
4. Clonidine
5. Dantrolene
6. Zanaflex

7



CP treatment adjuncts

- Excessive salivation: glycopyrrolate or scopolamine patch
- Anti-constipation medications
- Anti-micturition medications
- Tube feedings via a gastric tube or PEG tube for dysphagia and/or malnutrition
- Antibiotics for chronic aspiration

8

Jesse's Rule of Anesthesia for CP #1

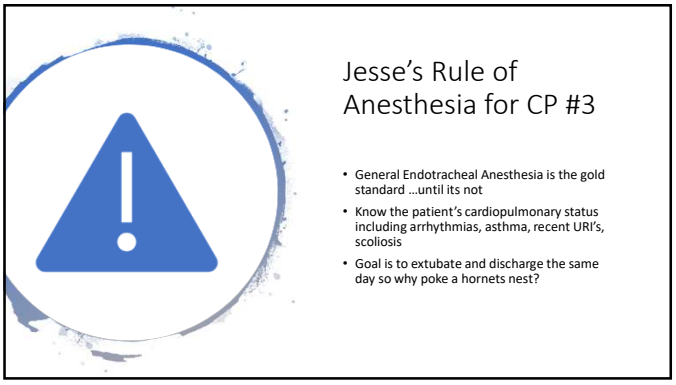
- Know all the medications a patient with CP is on because it can make or break your pre operative risk assessment
- For example: 1. A patient who needs a scopolamine patch for excessive secretions is going to cough, gag or worse, laryngospasm during your procedure under sedation!
- 2. If the patient has a G tube know if its for dysphagia in which case patient is a risk for aspiration
- 3.The patient on multiple constipation medications will have a pseudo-obstruction and aspirate or ruin your office floor when relaxed under anesthesia

9

Jesse's Rule of Anesthesia for CP #2

- If the patient has a G tube connect it to suction prior to induction
- Why have an aspiration event?
- Can also give oral medications like midazolam through a feeding tube

10



Jesse's Rule of Anesthesia for CP #3

- General Endotracheal Anesthesia is the gold standard …until its not
- Know the patient's cardiopulmonary status including arrhythmias, asthma, recent URI's, scoliosis
- Goal is to extubate and discharge the same day so why poke a hornets nest?

11

Jesse's Rule of Anesthesia for CP #5

- Leave a CP patient in the same position they were in prior to anesthesia
- Some patients will relax under general anesthesia but chronic spastics often will not and trying to extend arms, legs or neck can create severe pain

12

How is General Anesthesia for CP different from other cases

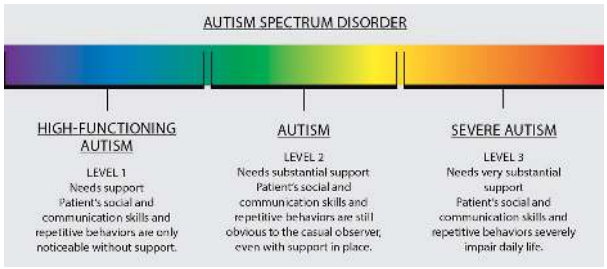
- Be aware of intellectual impairment/nutritional status and how it affects the ability to metabolize volatile agents, propofol and narcotics
- tachycardia is not always a sign of pain, may be baseline
- Stay away from Ketamine: increased salivation, seizure risk, vomiting , tachycardia
- Be aware of loose teeth! Always ask care givers in pre-operative assessment or check them yourself
- Be judicious with fluids with dextrose– chronic malnutrition is not uncommon even in those patients that can eat!
- Bladder scan if tachycardia/hypertension persist despite adequate pain control, may need to straight cath
- Keep the room warm

13

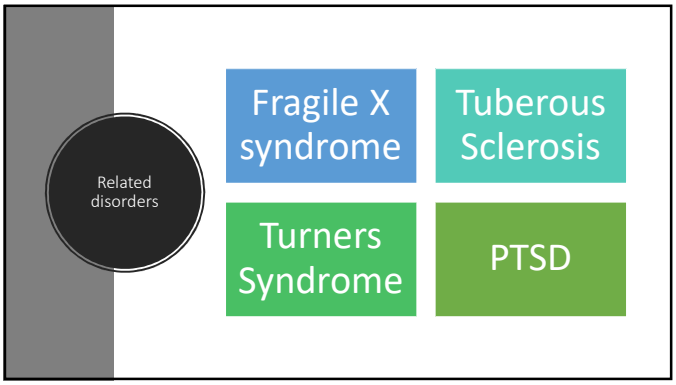
Autism Spectrum Disorder

- Group of Complex neurodevelopment disorders characterized by repetitive patterns of behavior, difficulty with social interactions and communication
- Often begins in early childhood and often affects daily functions depending on severity
- Spectrum includes Aspergers syndrome and Disintergrative disorder
- Occurs across racial/socioeconomic/ethnic groups
- Boys are x3 times more likely to be diagnosed

14



15



16

Treatment

Educational/Behavioral

Medications

- Stimulants: Adderall, Concerta, Focalin
- Anti-stimulants: Clonidine, Strattera
- Anti-psychotics
- Anti-convulsants
- Adjuvants: anti constipation /Anti-reflux/melatonin
- Naltrexone – self flagellation

17

Autism and Hypotonia

- Prevalence of motor impairment in autism spectrum disorders

Brain and Development Volume 29, Issue 9, October 2007, Pages 565-570
XueMing, MichaelBrima, George C.Wagner

- Fine motor skills more common than gross motor skills
- More prevalent amongst younger children
- No metabolic explanantion found to date
- Does not directly pose an increased anesthetic risk, however, may put patient at increased risk for reflux disorder

18

A Spectrum Disorder with a spectrum of anesthesia issues

01 Communication issues

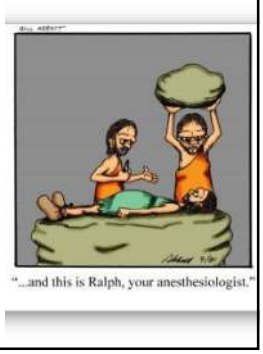
02 Separation issues

03 Sensory issues

19

Pre-operative management

- Parental involvement
- Foci – TV, music, inanimate objects
- Dark and Quiet room to decrease stimulation
- Oral sedation – midazolam
- Ketamine – oral/nasal/IM for the 6 foot 250 pound "man-child"



20

Operative Management

- Easy quiet wake up
- Parents in recovery
- Go the extra mile! Lab draws, hair cuts, nails, shampoo etc

21

Size Matters!

- 200 lb 16 year old male with severe autism, will not change into a gown, will not sit on the stretcher, will not let anyone near him
- Sedation to IV placement to Induction to post operative plan

a. Try Oral sedatives/nasal sedatives

b. IM Ketamine 10mg/kg minimum

*Jesse's rule of IM Ketamine: 100mg/cc in 5cc vial or 50mg in 10cc

LOAD IT ALL, GIVE IT ALL!

c. Mask induction?

d. Quiet wake up – sedation with Midazolam/Precedex/Propofol

All hands on Deck!

22

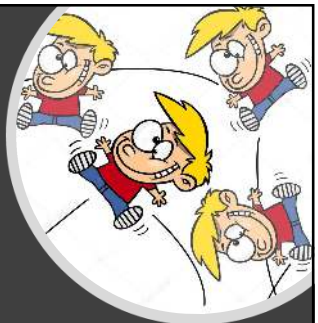
The Anxious child

- Anxiety disorder diagnosis or no diagnosis
- Often high functioning intelligent child
- General social anxiety vs targeted anxiety ie: Dentist or doctor
- Response to child's anxiety: Parents, care givers, teachers, etc
- Oral sedation and Anxiety issues – Paradoxical reaction or retained emotional state
- Can be the toughest special needs patients!

23

Paradoxical reactions to Sedatives

- Normal dosing of medication IV or PO
- Talkativeness, excitability, emotional release
- Less than 1% of patients
- Genetic component vs anxiety issues or combination
- Treatment?
  - More sedative? Different Sedative? Not a Benzo or Anti-histamine
  - Flumazinel? Not warrented
  - General Anesthesia – YES!



24

Flumazenil for benzo overdose

- GABA competitive antagonist
- Short half life may require repeat dosing
- Lowers seizure threshold, promotes excitability and agitation
- Potential for bradycardia and salivation so given with glyccopyrolate or atropine
- Nausea/vomiting

25

Preoperative plan

- Let the parents drive the bus…just not off a cliff!
- Pre-operative tour of OR?
- Ativan prior to arrival
- Oral Precedex
- Try to make it fun!
- Novel Distraction Technique for Pediatric Pre-operative Anxiety Prevention

J Aron, G Schwartz, J Fernandez-Silva, A Mahajan, K Kasperowicz, B Smallman. Novel Distraction Technique for Pediatric Pre-operative Anxiety Prevention. The Internet Journal of Anesthesiology. 2006 Volume 14 Number 1

26

Post operative plan

- Minimize pain
- Wrap IV
- Play the bad guy, even though you aren't
- Remember, some Anxiety Disorder patients become frequent fliers so try to set a good precedence!

27

The Down Syndrome Child

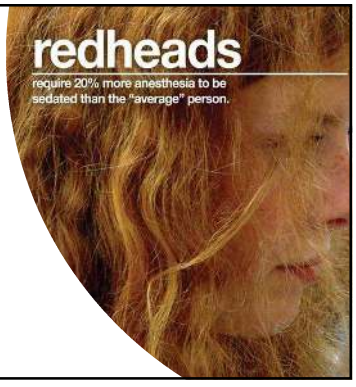
- "Hits all the nerve centers "
- Developmental Delay/Emotional Delay
- Also Anatomy issues

1. Difficult airway
2. Atlantio-axial instability
3. Gastroparesis
4. Difficult IV placement
5. Congenital heart disease
6. Sensitivity to medications: esp Atropine

28

Red Heads and Anesthesia/Analgesia

- Increased MAC of volatile gases
- Reduced lidocaine efficacy
- Reduced topical analgesic efficacy
- Only in females



29

In Conclusion

"I wouldn't change you for the world, but I would change the world for you."

- Never hesitate to call your local friendly neighborhood Pediatric Anesthesiologist for a consultation
- Listen to your patient and his/her caretaker(s)
- Plan ahead but plan to be humbled too

30