

AVOIDING COMPLICATIONS IN AMBULATORY ANESTHESIA: LETS BE CAREFUL OUT THERE!

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DISCLOSURE:

- Pacira BioSciences (consultant)
- Pierrel Pharma (Speaker's bureau).

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ANESTHESIA COMPLICATIONS IN THE DENTAL OFFICE

ANESTHESIA COMPLICATIONS IN THE DENTAL OFFICE



Edited by Robert C. Bosack and Stuart Liebllich
WILEY Blackwell

Anesthesia Complications in the Dental Office presents the most up-to-date information on treating anesthesia complications and medical emergencies. Drs. Bosack and Liebllich and a team of expert contributors discuss patient risk assessment; considerations for special needs and medically compromised patients; routinely administered anesthetic agents; adversities that can arise before, during, and after administration of anesthesia; and emergency drugs and equipment. A must-have reference for every dental office.

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WHAT I'M MOST PROUD OF:



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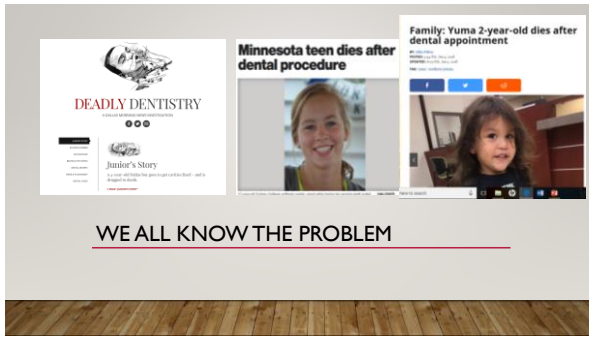
A BAD DAY IN THE OFFICE

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A GREAT DAY IN THE OFFICE!



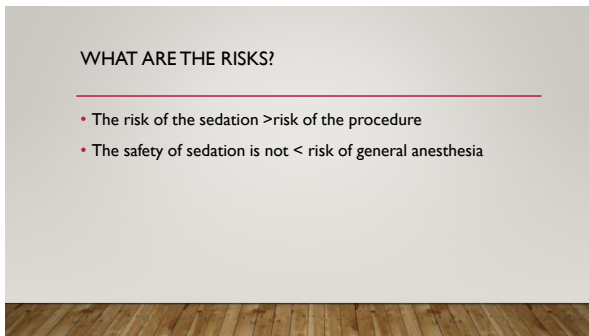
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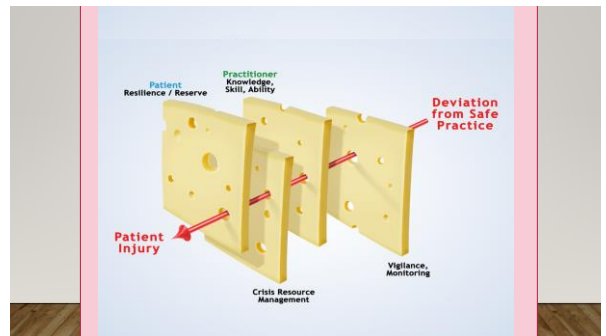
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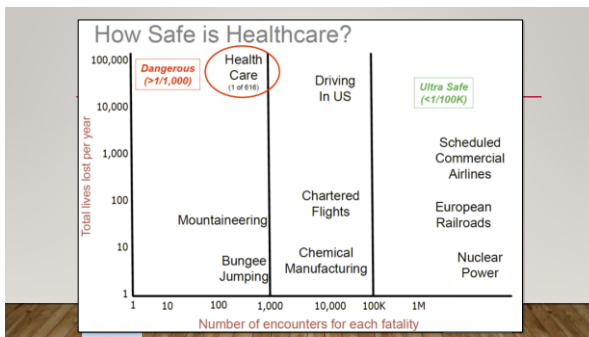
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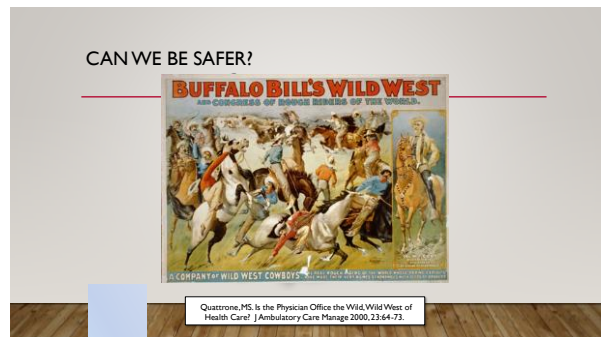
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ANESTHESIA INCIDENTS

PATIENT SAFETY EVENTS

- **Incidents**
 - events that reach the patient, whether or not harm was done
- **Near misses (close calls)**
 - events that do not reach the patient
- **Unsafe conditions**
 - Circumstances that increase the probability of incident or near miss

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Total In-Office Death/Brain Damage

Cases Reported to OMSNIC
2000 - 2012

103

14

Incidence of In-Office Anesthesia Death & Brain Damage Cases

$$\frac{103 \text{ cases}}{36,272,094 \text{ procedures}} = \frac{1}{352,156}$$

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FREQUENCY OF OFFICE ANESTHETIC DEATHS 2000-2012

- 1 in every 528 OMS will experience an office anesthetic death per year
- In a 30 year practice life 1 in 18 OMS will experience an office anesthetic death

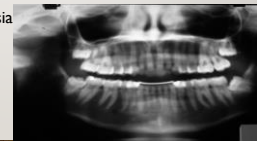
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WHERE DOES A "SAFE" ANESTHETIC START?

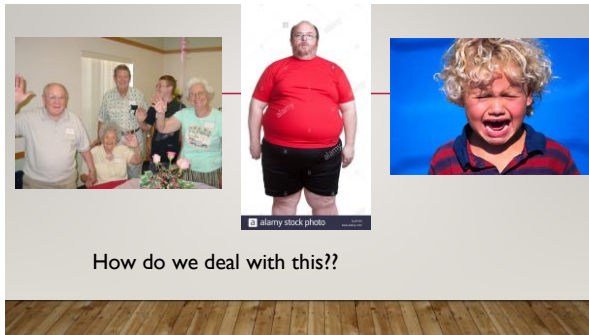
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IDEAL CASE PRESENTATION

- 22 year old female for extraction of impacted third molars
- ASA Class I
- Requests general anesthesia



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PATIENT SELECTION FOR OFFICE ANESTHETIC

- ASA I or II?
- Over 12, under 60?
- BMI <30

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WHAT IS THE ISSUE?

- “its always the airway”
- R. Bosack

21

PREDICTING A DIFFICULT AIRWAY

- In fact, all methods used to predict difficult airways lack specificity and sensitivity
- Shotgun approach - look at everything
- All decisions should be based on the most sensitive test
 - If you think the airway might be troublesome, it is !!!



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RESILIENCE

“HOW MUCH CAN YOU TAKE” - IT DEPENDS

- Ability to tolerate insult prior to “decompensation”
 - Apnea / inability to ventilate
 - Level of pre-oxygenation
 - Volume of functional residual capacity
 - Extrinsic / intrinsic restrictive disease
 - Age extremes / chemo / anorexia



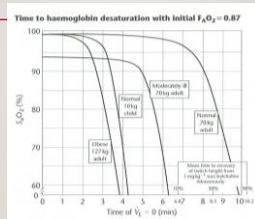
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RESERVE

- Ability to compensate for.....
 - Hypoxemia
 - Ability to ↑ rate and depth of ventilation
 - Upper airway patency
 - Hypotension
 - ↓ with opioids or β blockade
 - Limited ability to increase rate or contractility
 - Limited ability to vasoconstrict
 - Outflow obstruction – Aortic Stenosis

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DO YOU HAVE ENOUGH TIME ??



Benumof, 1998 Critical Hemoglobin Desaturation Will Occur before Return to an Unparalyzed State following 1mg/kg IV succinylcholine.

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INITIAL ANESTHESIA ASSESSMENT: WHO DO I CONSIDER A CANDIDATE?

- Vital signs
- Medical history
 - Co-morbid diseases?
 - How have you been feeling lately?
 - How many medications do they take (>5=danger zone)
- Can they take deep breath and hold it for 5-10 seconds?
- Can they extend head/open mouth wide

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METS

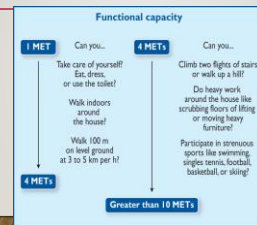
- "Metabolic Equivalent"
- 3.5 mL O₂/kg/min, or sitting and reading



Plangger et al., 1990

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ASSESSMENT OF RESERVE



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WHAT CAN WE DO TO IMPROVE OUTCOMES/MINIMIZE COMPLICATIONS?

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THE THREE R'S OF ANESTHETIC EMERGENCY MANAGEMENT

- **Readiness**
- **Recognition**
- **Reaction**

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PREPARATION OF OFFICE AND STAFF
READINESS

- Well organized staff
- Practiced emergency drills
 - Simulation (Sim-Man)
- Appropriate emergency equipment

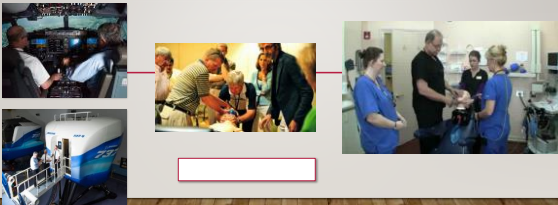
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ANESTHESIA SIMULATION

EFFECTIVE AND EFFICIENT TEAM LEARNING




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INADEQUATE TRAINING VS. DEGRADATION OF SKILLS

 Causes of morbidity and mortality in anesthesia in OMFS are understood to be hypoventilation and hypo-oxygenation as the critical event

 RESPIRATORY, not CARDIAC

 Current widely used programs for patient rescue in the US focus on resuscitation of patients in cardiac arrest

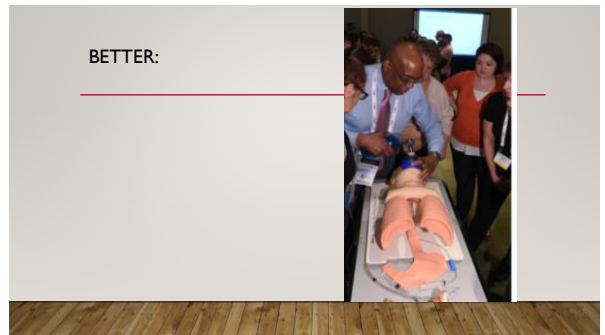
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GOOD:



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BETTER:



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BEST:



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WHY HUMAN SIMULATION COURSES??

- Anesthesia emergency response can be practiced without harm to patients when error occurs in:
 - **Failure to appropriately respond**
 - Correct response requires knowledge that is diverse, complex and rarely used
 - **Teamwork.**
 - Appropriate response in a timely manner requires competent teamwork.
 - **Need for rapid response**
 - Practice can improve efficiency of the individual and the team and the office set-up

Weller, et al. Psychometric characteristics of simulation-based assessment in anesthesia and accuracy of self-assessed scores. Anesthesiology. 2009;Mar;60(3):243-50.

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THE ORIGINAL SIM-MAN



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QUALITATIVE BUT TRANSLATIONAL!

- I wanted to let you know that I just successfully treated asystole with respiratory arrest in the office. The patient was a 67 year old with a history of HTN. Presented for debridement of the left mandible secondary to BRONJ. Was lightly sedated and started down the tubes. Required CPR, LMA placement etc. Patient was transferred in stable condition to the ER about an hour ago for work up and diagnosis.

The reason for the email is to thank you. There is no doubt in my mind that my experiences with simulation with your teaching and influence contributed to the success of the management. My staff, I must admit, was perfect but that is thanks to their dedication and what we practice which again I learned mostly from my relationship with the three of you.

If the patient understood how much simulation contributed to today's success she would be thanking you also.

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AIRWAY CRM

- Anticipate and plan
 - Consistent with Safety Culture – plan for the worst
- **SIMULATION**
 - Affective (interacting)
 - Cognitive (thinking)
 - Psychomotor (doing)
 - Involve all team members
 - Rehearse frequently
 - Must be done "in situ"



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AIRWAY CRM: USE COGNITIVE AIDS

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Assistant
ventilator suction - hold chin as needed - administer drugs

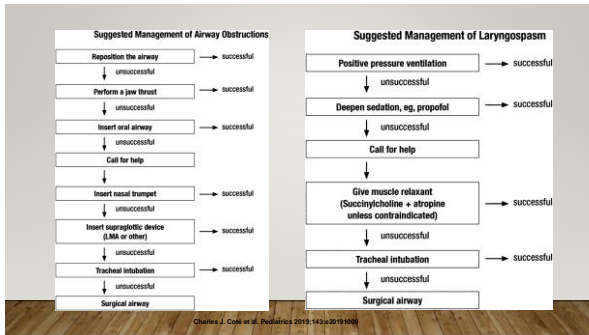
Chinner
note time - check oxygen - gets BVM

Circulator
bring airway tray to RCB right - record - draw up drugs

These actions occur over time and are not necessarily sequential or parallel and without leading to another in any particular or sequential order.

- 1 Loss of airway/ventilation
- 2 **NOTE TIME** (*don't record timing*)
- 3 Ensure 100% oxygen
- 4 Press on chest – listen for air (make eye - remove drugs!)
- 5 Suction, jaw thrust, chin lift, turn head to one side
- 6 PPV with facemask – oral pharyngeal airway
- 7 **Consider full drug reversal!**
- 8 **SUX** – call 911 if **fail** (*only call for help when*)
- 9 2 man PPV: one on the mask one on the bag
- 10 LMA - iGel!
- 11 Intubate (B agonist, opi x 2, Heimlich)
- 12 Surgical airway

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EACH ASSISTANT ACTS INDEPENDENTLY WITHOUT PROMPT OR WAITING FOR OTHERS TO ACT – THEY KNOW THEIR DUTIES AND POSITIONS !!!

Assistant

ventilator suction - hold chin as needed - administer drugs

Chinner

code time - checks oxygen - gets BVM

Circulator

bring airway tray to RCB right - record - draw up drugs

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AIRWAY LARRY TRAINING: BAG-VALVE-MASK, SUPRAGLOTTIC DEVICES AND INTUBATION

Practice protocols, movement of devices, order, sequence with your team; IN YOUR OFFICE

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My Opinion:

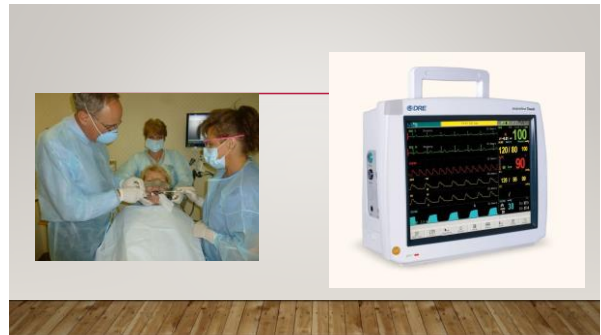
IN-OFFICE TRAINING AND PRACTICE FACILITATES AND CAN IMPROVE OUTCOMES FOR EACH AND EVERY OMFS ANESTHESIA TEAM MEMBER.

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THE THREE R'S OF ANESTHETIC EMERGENCY MANAGEMENT

- Readiness
- **Recognition**
- Reaction

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MONITORS IN OMFS

- **Non-invasive**
 - Automated blood pressure
 - Pulse oximetry
 - ECG
 - Capnography
- **Visual monitoring**
 - Respiration rate and depth
 - Skin color

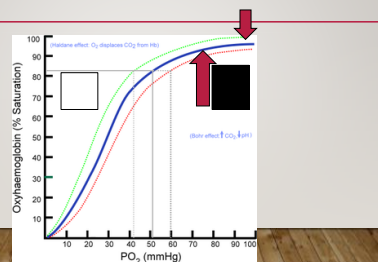
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PULSE OXIMETRY

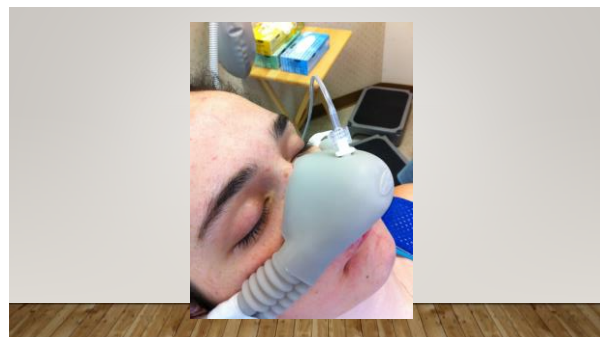
- Standard for conscious sedation
- Indication with nitrous oxide?
- Rapid and accurate
- Cost effective
- Audible alarms

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OXYGEN DISSOCIATION CURVE



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END TIDAL CO₂ (ETCO₂)

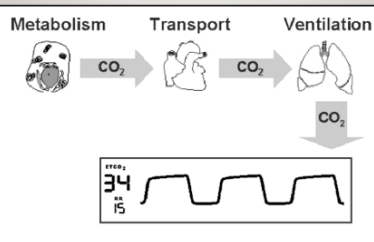
- Maximal concentration of CO₂ at the end of respiration
- Normal = 5-6% CO₂ (35-45 mmHg)

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CAPNOGRAPHY

- Verifies intubation
- Ventilation
- Circuit
- Circulation
- Drugs

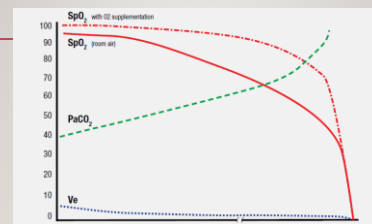
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CO₂ NARCOSIS

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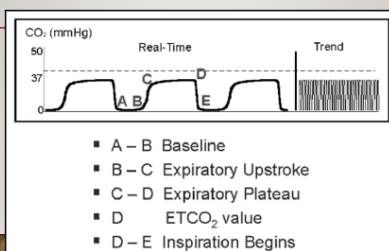
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CAPNOGRAPHY

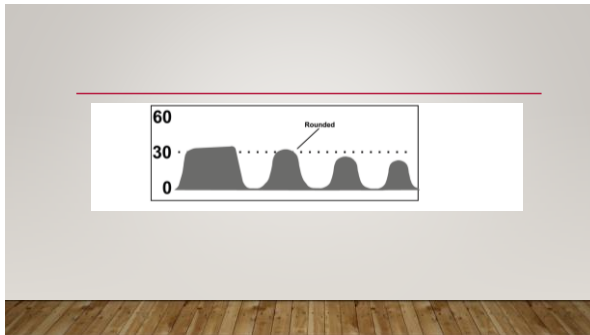
- 3 phases
- Alpha angle
- Measure CO₂ for cardiac output

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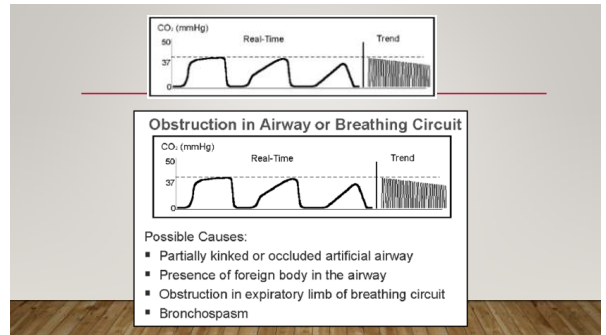
ONLY 1 NORMAL PATTERN



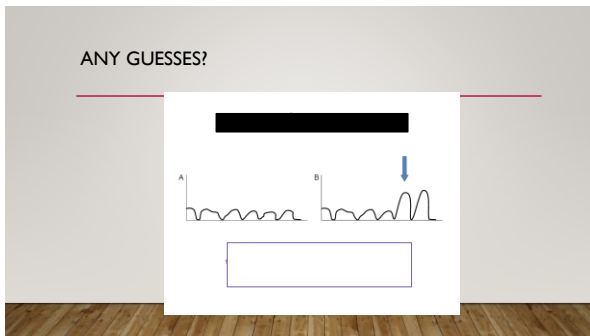
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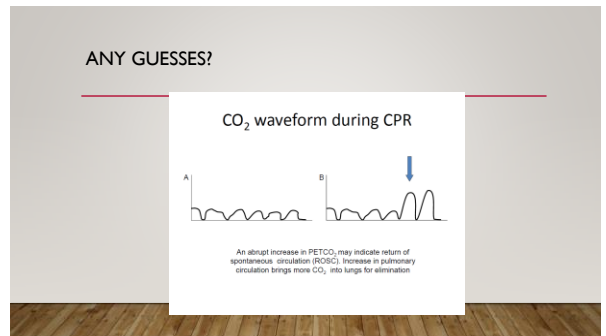
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CAPNOGRAPHY

- Concomitant oxygen administration maintains SpO₂ longer after apnea
- Therefore delay in pulse oximeter changes

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PRACTICE PARAMETERS

Practice Guidelines for Moderate Procedural Sedation and Analgesia 2018

*A Report by the American Society of Anesthesiologists Task Force on Moderate Procedural Sedation and Analgesia, the American Association of Oral and Maxillofacial Surgeons, American College of Radiology, American Dental Association, American Society of Dentist Anesthesiologists, and Society of Interventional Radiology**

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Table 6. Meta-analysis Summary

Evidence Linkages*	NI	Odds Ratio (CI)§	Z Value	P Value	Odds Ratio (CI)§	Z Value	P Value	Heterogeneity¶
Patient monitoring (capnography versus blinded capnography)								
Hypoxemia (O ₂ < 90%) ^{¶¶}	6	0.68 (0.51-0.90)	-3.53	< 0.001	0.70 (0.47-1.02)	-2.44	0.015	0.110
Supplemental oxygen (supplemental oxygen vs. placebo)								
Hypoxemia (O ₂ < 95%) ^{¶¶}	7	0.15 (0.09-0.24)	-10.49	< 0.001	0.24 (0.07-0.81)	-3.01	< 0.001	< 0.001
Sedative/analgesics not intended for general anesthesia (midazolam combined with opioids vs. midazolam)								
Pain/discomfort during procedure ^{¶¶}	6	0.57 (0.33-1.00)	-2.57	0.010	0.48 (0.16-1.43)	-1.73	0.084	0.061
Hypoxemia (O ₂ < 95%) ^{¶¶}	6	1.97 (1.00-3.90)	2.57	0.010	2.21 (0.80-6.12)	2.01	0.044	0.111
Recall (no recall during procedure) ^{¶¶}	8	1.07 (0.62-1.84)	0.31	0.759	1.09 (0.58-2.06)	0.35	0.726	0.268
Sedative/analgesics intended for general anesthesia (propofol vs. midazolam)								
Recall ^{¶¶}	5	0.49 (0.25-0.97)	-2.67	0.008	0.40 (0.07-2.21)	-1.38	0.168	0.002
Hypoxemia	7	0.95 (0.41-1.70)	-0.631	0.565	0.92 (0.48-1.78)	-0.32	0.752	0.638

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Table 6. Meta-analysis Summary

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CONCLUSIONS: CAPNOGRAPHY

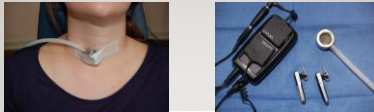
- Hypoventilation/apnea precedes hypoxia
 - Capnography can recognize:
 - Airway obstruction
 - Hypoventilation
 - Apnea

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	Side stream, nasal sampling capnography	Pre-tracheal auscultation
Mouth breather	No	Yes
Slow, silent nasal breathing	Yes	No
Slow, silent mouth breathing	No	No
Able to detect impending airway compromise	No	Yes

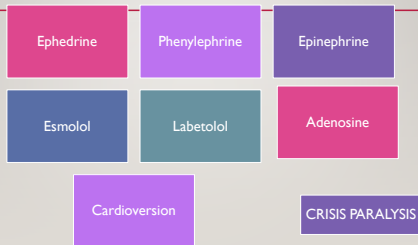
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THE PERPLEXING PROBLEM OF PATIENT VARIABILITY

- Drug effects can vary 2 – 5 fold !
- What is the likelihood of APNEA ?
- What is the likelihood of HYPOXEMIA secondary to apnea?
- Will the patient tolerate the resultant stress response?

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WHAT ARE YOUR THRESHOLDS FOR



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CASE PRESENTATION

- 47 year old male patient for extraction #30 (surgical extraction)
- Anesthetic plan:
 - Extraction with nitrous oxide/oxygen; local anesthesia
- Day of surgery:
 - BP 210/122, pulse 90

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TREAT PATIENT TODAY?

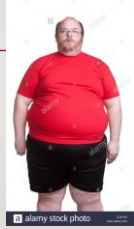
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CASE PRESENTATION (CONT'D)

- Surgery cancelled; referred to PCP
- Patient returns 6 weeks later
- Medication: Catepress (clonidine) .25 mg BID
- BP 105/62, pulse 88

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TREAT PATIENT TODAY?



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CASE PRESENTATION (CONT'D)

- Extraction with 60% nitrous oxide/Oxygen; 2 carpules lidocaine with epinephrine
- Procedure time 15 minutes
- Patient "abruptly" moved to recovery area
- Upon standing; patient fell
- Struck face against counter
 - #8 and #9 fractured at gingival margin
 - Subcondylar and parasymphseal fractures
 - Through and through laceration of chin

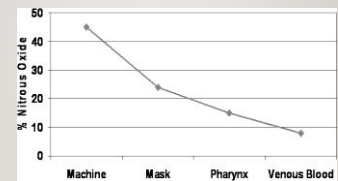
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OUTCOME

- Oral surgeon didn't recognize the subcondylar fracture
- Sued for malpractice due to poor outcome of the fracture management, scar and dental injuries
- Doctor and corporation sued for failure to recover patient properly (diffusion hypoxia and unrecognized orthostatic hypotension)

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NITROUS OXIDE ADMINISTRATION



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DIFFUSION HYPOXIA?

- Requires 70% administration for clinical signs
- Not achievable with dental systems
- Still administer 100% oxygen
 - Patient equilibration
 - Scavenging of residual nitrous oxide

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DEBRIEF HYPOTENSION

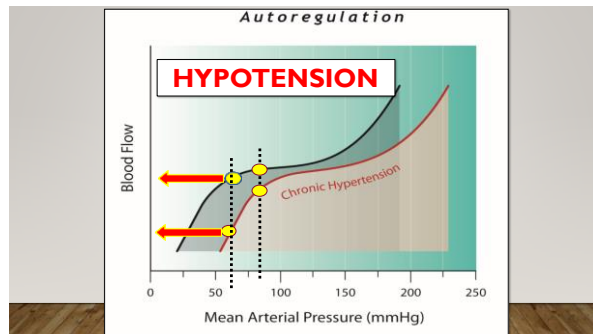
- Team leader
 - Denial of fact
 - Violate principles
 - Divided attention didn't help
- Good team support
 - Spoke up, drew Dr. back into the case
 - Knew where epinephrine was
 - Knew the dose and how to prepare
 - Performed like clockwork !!!!

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HYPOTENSION

- Much more worrisome than hypertension
- Especially in the Hypertensive patient

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HYPOTENSION

- Three primary causes
 - Inadequate venous return
 - Decreased pump function
 - Decreased vascular resistance

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INADEQUATE VENOUS RETURN

- Hypovolemia
- Blood loss
- Clinical signs
 - Tachycardia
 - Dry mucous membranes
 - Decreased CVP or jugular venous height

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ARE AMBULATORY OMFS PATIENTS HYPOVOLEMIC?

- Study: Administration of fluids (D₅ 1/2 NS) to ambulatory OMFS pts vs. KVO
Bennett J, MacDonald T, Lieblich SE, Pecuch JP. JOMS
- Evaluate parameters
 - Time to discharge
 - Post-operative dizziness, weakness
 - Post-operative nausea/vomiting

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RESULTS

- Significant reduction: nausea and vomiting
- Patients reported sooner return to “normal” feeling
- Reduction in heart rate in perioperative period
- Cost of 500cc of D₅ ½ NS is \$2.78

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HYPOTENSION: INADEQUATE VENOUS RETURN

- Fluid challenge
 - ? Administer routine fluids
- Supine position

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HYPOTENSION: DECREASED CARDIAC FUNCTION

- Reduce anesthetic gases
- Treat arrhythmias
- Treat ischemia
- Consider steroids (if history of chronic use)

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HYPOTENSION: DECREASED VASCULAR RESISTANCE

- Requires supportive medications
 - Ephedrine
 - 5-20 mg bolus
 - Epinephrine
 - If anaphylactic reaction suspected or if severe
 - 0.3-0.5 mg IM

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IS HYPERTENSION BAD?

- Contributions of systolic and diastolic blood pressures to cardiovascular outcomes
- Predominance of MI with low diastolic BP (least risk @ 155/90)
- “in severe middle-aged hypertensives, attempts at ‘normalization’ of high blood-pressure may precipitate as many infarctions as it prevents”
- CVA risk increases with increases linearly with increasing SBP

[J.Am.Coll.Cardiol.](#) 2021 Oct, 78 (17) 1671–1678

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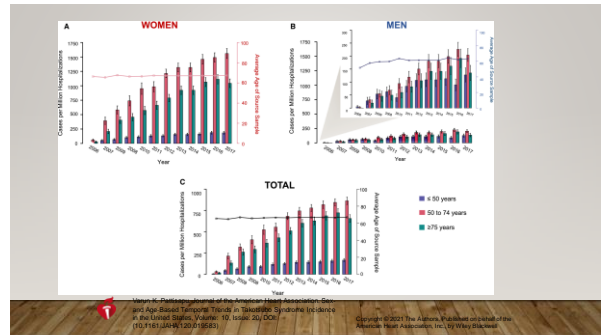
“I’M ALLERGIC TO
EPINEPHRINE”

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TAKOBSUTO SYNDROME

- Heart failure symptoms
- Hypotension
- Transient mild elevation of cardiac enz
- Negative angiography
- Triggers:
 - Stress
 - "bad news, partner hostility"
 - Catecholamine release (exogenous)

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HYPOTENSION - ALGORITHM

- BP falls 20% from "baseline"
- Pre-op measurements may not be "baseline"
- A drop in BP more worrisome in hypertensive patient !!!
- MAP has more clinical relevance than Systolic or Diastolic
 - MAP < 60mmHg, or 20% drop from normal baseline

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HYPOTENSION - ALGORITHM

- Etiology - Differential
 - Syncope
 - Hypoxia
 - Dehydration (hypovolemia), prolonged fast
 - Drug overdose
 - Relative or absolute
 - Patient may be overly sensitive to small doses
 - Allergy
 - Concomitant disease (overdose of anti-HTN meds)
 - Drug interaction
 - Arrhythmia (tachycardia or ventricular ectopy)
 - PE

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HYPOTENSION - ALGORITHM

- Treatment
 - Stop/stabilize surgery, stop anesthesia (?)
 - Stimulate patient
 - ABCO
 - Recheck pressure
 - Trendelenburg
 - Elevate legs (500 – 1000cc immediate venous return)
 - Isotonic fluid challenge (LR or .9NS)
 - Drug reversal (?)
 - Narcan 0.4mg in 10cc, titrate to effect, watch for pulm edema
 - Drug administration
 - Ephedrine
 - Phenylephrine

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DRUG SELECTION FOR HYPOTENSION

- Ephedrine
 - α and β agonist
 - Will ↑ BP and ↑HR
 - For hypotension without tachycardia
 - Direct and indirect acting
 - 50mg/cc
 - Dilute 1 in 9
 - 5mg/cc
 - Start with 1cc
 - Onset 1 minute
 - Duration 1 hour
 - Tremors, tachycardia possible
- Phenylephrine
 - α agonist
 - Will ↑ BP without ↑ rate
 - For hypotension with tachycardia
 - Direct acting
 - 10mg/cc
 - Double dilute 1 in 9, 1 in 9
 - 0.1mg/cc
 - Start with 1cc
 - Onset 1 minute
 - Duration 20 minutes
 - Reflex bradycardia possible

105

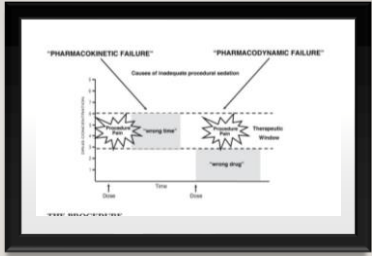
PEDIATRIC ANESTHESIA

- Peds
 - high risk, lowest tolerance for error
 - Easily and rapidly slip to a deeper level
 - Sedation usually not possible
- 2 competent people in the room
- Age and size appropriate drugs, doses and devices at hand
- Loose deciduous teeth



106

WHY DID MY TECHNIQUE FAIL?



107

FAILURE TO WAIT



108

ADHD PATIENT: METHYLPHENIDATE

- GABA system changes in methylphenidate sensitized female rats.
- Freese L¹, Muller EJ, Souza MF, Couto-Pereira NS, Tosca CF, Ferigolo M, Barros HM
- Behav Brain Res. 2012 May 16;231(1):181-6. doi: 10.1016/j.bbr.2012.03.017. Epub 2012 Mar 20.

109

PATIENT SPECIFIC FAILURES

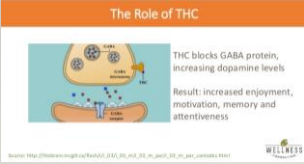
The study, "Age-dependent, lasting effects of methylphenidate on the GABAergic system of ADHD patients"

"We report that there are lasting changes in this neurotransmitter system when ADHD patients are treated before the age of 23 years old, i.e. during brain development."

"This was not the case when treatment was started after the age of 23, when the brain was matured. These results indicate that treatment with methylphenidate in childhood does alter this specific neurotransmitter system in the brain in a long-lasting manner."

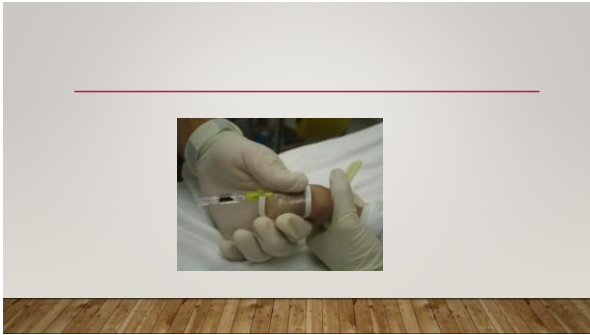
110

The Role of THC



OTHER GROUPS WITH HYPER-REACTIVITY

111



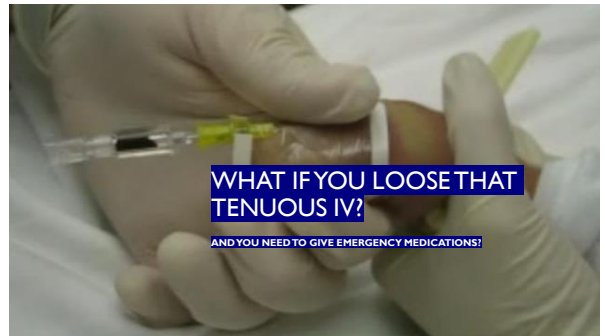
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113



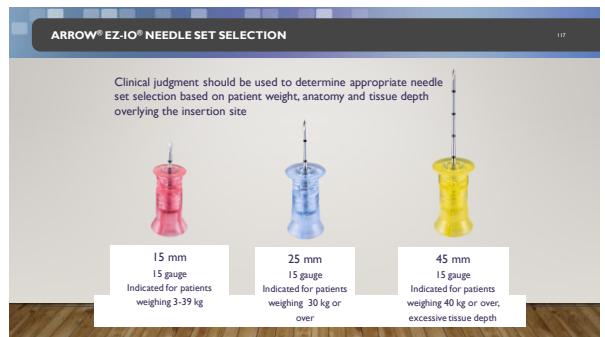
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115




116



117

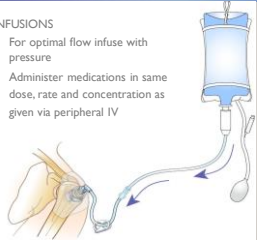
FLUSH/INFUSIONS/MEDICATIONS

FLUSH
 Adults: 5-10 mL
 Infants/Children: 2-5 mL



INFUSIONS

- For optimal flow infuse with pressure
- Administer medications in same dose, rate and concentration as given via peripheral IV



118

CAN WE TRANSLATE SIMULATION TO PRACTICE?

119

Intubating During the Covid-19 Pandemic: What oral surgeon can do - Dr. Stuart Lieblich



AMBUAC

In New York City, during the pandemic of the coronavirus SARS-CoV-2, oral and maxillofacial surgeons (OMFS) also volunteer at a New York City (NYC) and I had a month of COVID-19. When the COVID-19 crisis hit, all of our oral and maxillofacial surgery emergency departments had to be closed for several weeks. I don't see the 2 other partners sharing the responsibility. The dental emergency of the NYC program also was disrupted.

As the end of the New York City period a small health care volunteer to assist at home hospitals or other need in health care system.

Really, I would be happy to see the New York City (NYC) that emergency oral and maxillofacial surgery at all one (NYC) County and to the surrounding area with of international health care on the ground. I think that this is best for volunteers.



120

PEDIATRIC ANESTHETIC AGENTS TO CONSIDER

- Benzodiazepine
 - Midazolam
- Ketamine
- Propofol
- Opioids
 - Fentanyl
 - Meperidine
- Inhalational agents
 - Risk of MH with potent agents

121

PEDIATRIC USE OF MIDAZOLAM

- Redistribution of drug similar to adults
- Clearance rate is faster
- Terminal elimination is shorter or the same as in adults

122

MIDAZOLAM

- Consider anxiolytic doses only
 - 0.10 mg/kg
 - Paradoxical responses without concomitant opioid (15-20%)
- Higher doses associated with increased reactivity
- Useful in combination with ketamine, Propofol and/or narcotic
- Elimination half life is much shorter in children
 - 1.2 hrs vs 1.7-4 hrs
- Mild negative inotropic
 - Insignificant in absence of cardiac disease

123

PEDIATRIC INTRAVENOUS ACCESS

- Nitrous oxide/oxygen
 - Consider full face mask
- Oral midazolam
 - Sublingual for semi-cooperative
 - Bait and switch for less cooperative
- Intranasal
 - Very irritating/stinging
 - Need to use full dose (0.5 mg/kg of midazolam)
- Buccal mucosa injections



124

NARCOTICS FOR PEDIATRIC INTRAVENOUS SEDATION

- By 2 months of age clearance rate equals that of adults
- Meperidine
 - Concern with asthma patient
 - Longer duration of action than fentanyl
 - Antisialagogue activity may be useful with ketamine
- Fentanyl
 - Shorter duration of action (15-20 min)
 - No cases of stiff chest with sedative doses
 - 1 ug/kg doses

125

PEDIATRIC PROPOFOL USAGE

- No difference in recovery based on sex
 - In adults Females recover quicker
 - 10% lower plasma level with equivalent weight dosage
- Base dose on actual weight (not ideal)
- Egg allergy patients?
 - Egg allergy: ovalbumin, ovomucoid, conalbumin (not found in lecithin)
 - Only 2% of pediatric patients with egg allergies showed allergic response
 - No cases of anaphylaxis
- Soy allergy patients?
 - Soya oil is refined, i.e. no soy proteins are present

126

PROPOFOL

- Most commonly used IV induction agent in children
- Excellent in combination with narcotics
- Also good combination with Ketamine

128

KETAMINE

- Delay to discharge
- Nausea/Vomiting
 - Esp children >10 years of age
 - Consider Ondansetron
 - Dexamethasone
- Recent studies fail to demonstrate hypersalivation
- Emergence phenomenon
 - 2% in cases of sole agent use (requiring transient physical restraint)
 - Relative contraindication with psychiatric disease

129

AVOIDING OVERSEDATION

ACADEMY OF PEDIATRICS COMMITTEE ON DRUGS

- Preoperative medical evaluation and focused airway assessment
- Appropriate interval of fasting
- Sedative medications given under supervision (i.e. not at home) and by trained personnel
- Must be trained in pediatric airway and CPR protocols
- Age and size appropriate emergency medications and equipment are on hand
- Continuous monitoring (pulse oximetry, ET CO₂)
- A trained individual who's only responsibility is monitoring and recording vital signs
- Specific discharge criteria

130

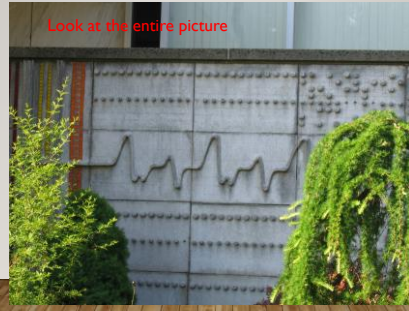
DON'T ASSUME ANYTHING

- NPO
- Medical history
- Escort



131

Look at the entire picture



132

Not just a portion



133

HOW DO WE DEAL WITH THIS??



134

CAN WE "SEDATE" GERIATRIC PATIENTS?

- **Depends: cardiac & pulmonary status**
 - Reserves are the key!
- **Time of Day?**
 - First appointment of the day??
- **Drugs of choice**
 - Midazolam?
 - Propofol?

137

CARDIAC RISK FACTOR: PREVIOUS MYOCARDIAL INFARCTION

- MI without previous history
 - <0.1%
- Incidence of reinfarction
 - First 3 months: 5.7% (36%)
 - 3-6 months: 2.3% (15-25%)
 - After 6 months: 1.9% (5%)
 - Data: 1983 study; (1977)
- Recurrent MI's are usually "silent"
- Second peak 48 hours post GA
- Mortality: 33-70%

138

CARDIAC RISKS WITH NON-CARDIAC SURGERY

- Less than 4 MET's
- Presence of Q waves on ECG
- Stress test shows areas of ischemic cardiac tissue at risk
- Revascularization reduces risk??
 - Not clinically proven
- HF risk > Afib > CAD

139

CARDIAC STENTS

- Bare metal
can stop antiplatelet therapy 4-6 weeks
- Drug eluting
 - 3-6 months of dual anti-platelet therapy
 - Risks with acute cessation

140

CARDIAC ISSUES OF AGING

- Increased fibrosis, decreased elastin, decreased myocyte #
 - Vascular stiffness, systolic HTN,
- Fibrotic infiltration of the conduction system
 - Leads to a-fib
- Diastolic dysfunction
 - LV cannot return to resting length
 - Time in diastole is shortened due to increased
- Cannot tolerate:
 - Hypervolemia/Hypovolemia



142

WHAT IS ATRIAL FIBRILLATION?

DISORGANIZED ATRIAL
RHYTHM
IRREGULAR VENTRICULAR
RESPONSE
THE MOST COMMON
ARRHYTHMIA IN GERIATRIC
PATIENTS



143

WHAT CAUSES A FIB?

- Remodeling of the left atrium with fibrosis and muscular atrophy
- Inflammatory model: pro-inflammatory mediators and cytokines cause breakdown of normal cardiac musculature.

144

ANTICOAGULATION

- Risk is similar in paroxysmal, persistent and permanent AF
- Not related to duration of episodes and time in AF
- Effective for primary and secondary CVA protection
 - Reduction in stroke 60% vs. placebo
- Cardiac stents
 - Drug eluting stents dual therapy for 6-12 months

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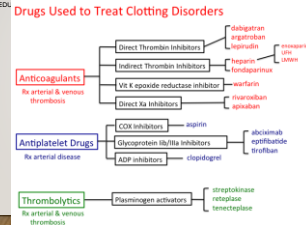
WHO GETS ANTICOAGULATED? WARFARIN USE

- ASA 325 once a day
 - < 60 years no heart disease
 - < 60 years heart disease no other risk factors
 - 60-75 years no other risk factors
 - If warfarin recommended but contraindicated or refused
- Warfarin to INR of 2
 - > 75 years age, especially women
- Warfarin to INR 2-3
 - > 80 with diabetes or heart disease 1+ ASA
 - HF with EF < 35%, thyrotoxicosis or hypertension
- Warfarin INR 2.5-3.5
 - Rheumatic heart disease
 - Mitral stenosis
 - Prosthetic valve
 - Previous embolism, current arial thrombus

146

PHARMACOLOGY OF ANTICOAGULANTS

THE WEB TULANE EDUC



147

PERIODONTAL DISEASE IS THE ISSUE

Safety of Dental Extractions During Uninterrupted Single or Dual Antiplatelet Treatment

The American Journal of Cardiology (www.ajconline.org)

148

RISKS OF EXTRACTIONS ON ANTI-PLATELET THERAPY

- Study group: overall bleeding 1.8%
 - ASA 100mg 1.1%
 - Clopidogrel 3.1%
 - Clopidogrel + ASA 4.2%
- 15 cases of post operative bleeding
 - 12 simple extractions
 - 11 with periodontal disease

Dental extraction without stopping single or dual antiplatelet therapy: results of a retrospective cohort study. IJOMS 45(10): 1293, 2016

149

ANTICOAGULATION

- Group A: Highly anticoagulated, INR >3.5 simple surg
- Group B: Therapeutic anticoagulated 2.0-3; complex surg
- Group C: Highly anticoagulated, complex surg
- No major issues in any groups besides local hemostatic measures.
- Bajkin, et JADA 2015:
 - Dental extractions in patients who are highly anticoagulated (INR ≥ 3.5 to 4.2), as well as more extensive oral surgical procedures in patients who are therapeutically anticoagulated, can be performed safely without interruption or modification of the therapy

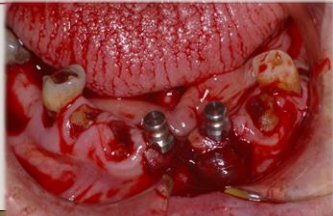
150

WARN YOUR PATIENTS!



151

MY EXPERIENCE PART I



152

MY EXPERIENCE PART 2

- 63 year old female
 - On Plavix and ASA (2 cardiac stents)
- Root resection under bridge #13
- Call from E.D. at 3:00AM
 - Required 2 units PRBC's

153

MY EXPERIENCE PART 3

- 56 year old
- Extraction #30, implants to #30, 29
- Going post surgery to dentist for endo #31; temp bridge 28-31
- On Xarelto for A-fib
- Call from patient 4 hours later, "my tongue is swollen"

154

MY EXPERIENCE: PART 3



155

MY EXPERIENCE: PART 4

- 56 year old patient
- Hepatic failure
 - Secondary Hep B and C
- On Transplant list; referred to community oral surgeon with consult sheet
- Needs multiple extractions (12 broken down teeth)
- Oral surgeon refers patient back to academic center
- Seen by resident/discussed with attending



156

PART 4

- Preop labs:
 - INR 2.1
 - MCP class II
 - MELD = 26
- Extracting teeth in clinic?

Table I. Modified Child-Pugh score

	Points assigned to laboratory values and signs		
Parameters	1	2	3
Laboratory values			
Total serum bilirubin, mg/dL	<2	2-3	>3
Serum albumin level, g/dL	>3.5	2.8-3.5	<2.8
PT, seconds over control	1-4	4-6	>6
INR	<1.7	1.8-2.3	>2.3
Clinical signs			
Ascites	None	Controlled	Poorly controlled
Encephalopathy	None	Controlled	Poorly controlled

A total score of 5-6 is considered Grade A (well-compensated disease); 7-9 is Grade B (significant functional compromise); and 10-15 is Grade C (decompensated disease).
 PT, Prothrombin time; INR, international normalized ratio.
 (Adapted from Pugh RNH, Murray-Lyon IM, Dawson JL, Williams R. Transsection of the oesophagus for bleeding oesophageal varices. Br J Surg 1973;60(8):646-9. Copyright British Journal of Surgery Society Limited. Reproduced with permission. Permission is granted by John Wiley and Sons Ltd. on behalf of the BJSS Ltd.)

157

TRANSPLANT TEAM REFERRAL NOTE

Standard referral to transplant will also be required. If there are changes in the referring site, please fax to our office.

1. Are teeth and gums free from serious, active infection? yes no
2. If not, what is the recommended treatment to remedy the condition as a prelude to transplant?
Recommend ~~just~~ multiple extractions with oral surgeon
Multiple fractured teeth (# 1, 2, 3, 14, 15, 16, 18, 19, 24, 25, 31, 32)
3. Oral cancer screening performed and negative? yes no
4. If extensive dental work is needed where there is a significant risk of bleeding, we suggest checking a CBC and PT/INR and transfusion of 4 units FFP (if INR >= 1.5), or 1 unit of pheresed platelets (for platelet count <=50); use irradiated products to prevent alloimmunization.

158

PART 4

- Pre op labs
INR = 2.1
- PT= 19.8
- Platelets 72,000
- Multiple extractions in clinic
- Gelfoam placed
- Discharged to home (2 hours away)

159

PART 4

- 4 calls to clinic/on call resident: persistent bleeding
- 11 hours later goes to local ED
- Hgb 3.2
- Transported via ambulance
- Refused enroute, no ICU beds
- Rerouted, codes, unable to resuscitate

160

HEPATIC DYSFUNCTION

“A horse of a different color”



161

INR ELEVATION COUMADIN ≠ INR HEPATIC FAILURE

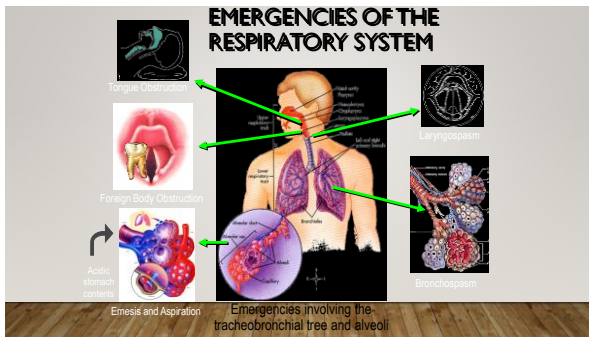
- Hepatic disease
 - Increase INR:
 - Increase PT
 - All factors except VwF and VIII
- Thrombocytopenia
- Qualitative platelet defects
- Enhance fibrinolytic activity

162

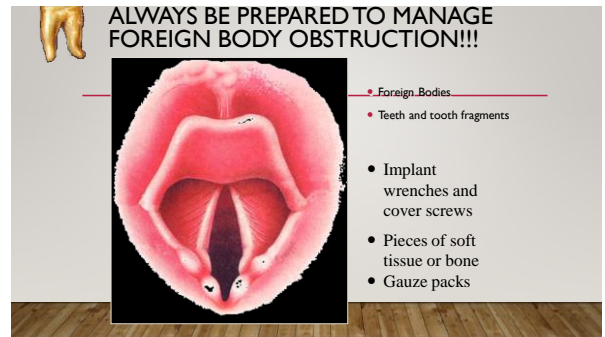
RESPIRATORY EMERGENCIES

- Airway obstruction
- Laryngospasm
- Bronchospasm
- Emesis / Aspiration
- Hyperventilation
- Respiratory Depression/Arrest

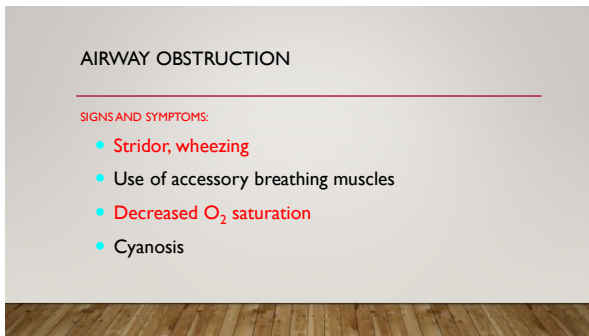
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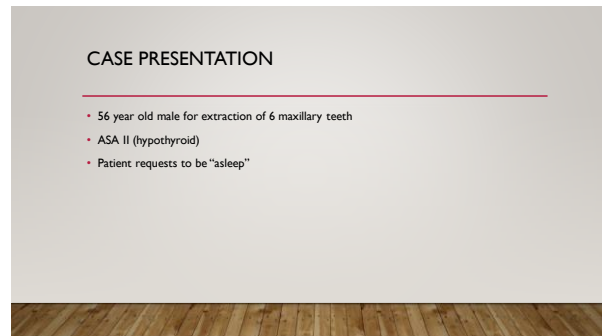
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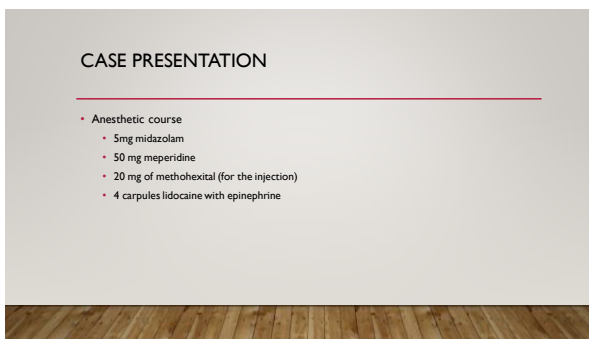
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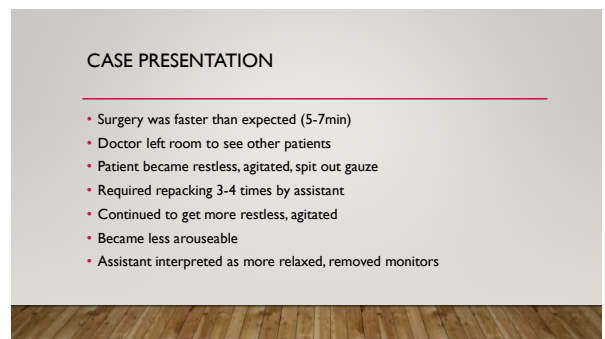
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167



168



169

CASE PRESENTATION

- After patient became even more unresponsive, pulse ox reconnected
- Doctor called back into room
- Oxygen saturation 81%
- Gauze pack removed
- Saturation continued to drop
- Positive pressure oxygen attempted

170

CASE PRESENTATION

- Intubation attempted X 3
- 911 called
- Surgical airway "attempted"

171

DIAGNOSIS?

- Post mortem: 2 X 2 gauze lodged in vocal cords
- Malpractice suit (wrongful death) against doctor, corporation and assistant
- Case dropped against assistant
- Jury verdict \$1.2 million

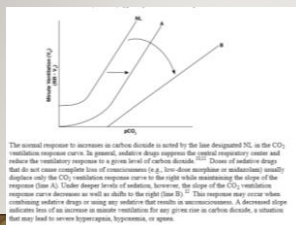
172

SUGGESTIONS

- How was patient monitored?
 - Level of training of assistant
- Sedated and anesthetized patients should have monitors in place and be observed by a human until awake and alert
- Small gauze packs are inappropriate
 - Use an opened 4 X 4 with several inches protruding

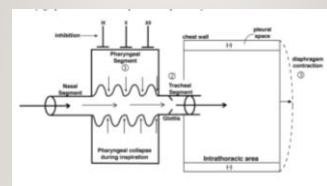
173

RESEDATION IN RECOVERY PHASE



174

MIDAZOLAM INDUCED RESP DEPRESSION



176



177

SUGGESTIONS

- Airway access
 - Those working with impaired airways should be trained and equipped to perform a surgical airway

178

I-TEAM INVESTIGATION

- Dentist sees license suspended after several patient problems
- A 55-year-old man identified only as J.S. was being treated for an extraction on Dec. 19, 2013.
- "We have a patient who was aspirated a throat pack and we can't get him breathing," a caller reported during an emergency call.
- During conscious sedation, documents said the patient's throat pack was sucked into his lungs. An assistant notified ... three times during the procedure that the man aspirated the gauze

179

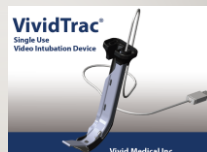
ADVANTAGES OF VIDEOLARYNGOSCOPY

- Improves first attempt intubation
- Less stimulating...awake intubation ?
- Traditional airway assessment for intubation becomes *less relevant*
 - Jaw size, mand position and mobility
 - Tongue size ?
 - MIO
- Still need to assess BVM difficulty
 - Old age, facial hair, teeth, BMI, hx of snoring, neck mobility

180



\$10,000



\$80

181



182

CAVEATS !!!

- Can't just buy it and be good
- May improve view, still may not be able to pass tube
- Blade can easily push tongue posteriorly if you do not know where to look
 - Look at patient first, then screen
 - Pharyngeal injury possible if looking
- Must keep blade relatively still, cannot use to manipulate larynx into view
- Pharyngeal wall injury
- Equipment may fail !!!!

183

CASE PRESENTATION

- 8 year-old referred for impacted canine exposures
- Very anxious
- Parents and child "demand" to be asleep
- ASA I



191

CASE PRESENTATION

- 45 minute procedure
- Brought to recovery area
- Complains of nausea
- IV fluids opened up; total bag 500 mL given
- Child disorientated, crying, voids spontaneously
- Additional 500 mL fluids given

192

CASE PRESENTATION

- Still is disorientated
- Complains of headache, "can't see straight"
- Has seizure
- Unarouseable
- 911 called
- On moving to stretcher EMT's note fluids
D 50 W

193

CASE PRESENTATION

- Transported to ED
- BS = 2186
- Controlled coma initiated
- Unable to wean off meds
- Declared 48 hours later

194

MEDICAL ACCIDENTS

- One or more of 4 levels of failures:
 - Organizational^o
 - Unsafe supervision^o
 - Preconditions for unsafe actions^o
 - Unsafe actions themselves^o

Reason J: Human error: models and management. Br Med J. 1990

195

50% DEXTROSE??
SIMILAR PACKAGING



196

HOW D 50W ?

- Regular staff person out sick
- Order with company:
 - 1 case of D5W
 - 1 bag of D 50W
- Company shipped 1 case of D 50W & 1 bag D5W
- New staff thought her mistake
- Removed foil packaging and placed in operatory

197

COMMONLY USED AGENTS: SIMILAR PACKAGING



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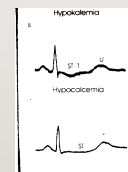
199

SAME DRUG/DIFFERENT DOSAGE



200

ECG



201

"ACROSS THE ROOM" ECG DIAGNOSIS

- Width of QRS
- Regularity of QRS
- Abnormal QRS
- P waves preceding QRS



202



203

TACHYDYSRHYTHMIAS

- Interferes with ventricular filling
- Decreased cardiac perfusion
 - Induces or worsens ischemia



204

TACHYCARDIA

- Deepen anesthesia
- Check local anesthesia
- Volume deficit
- Drug induced:
 - Self limiting with methohexital (5-7 min)
 - Associated with isoflurane induction

205

WHEN WOULD I TREAT TACHYCARDIA?

- PSVT AND:
 - Hypotension
 - Chest pain
- Adenosine



206

207

BRADYCARDIA

- Awake patients
 - Change in mental status
 - Light-headedness
 - Nausea
- Anesthetized patients
 - Fall in blood pressure
 - Treat more aggressively in children

208

BRADYCARDIA

- Verify oxygenation
- Remove or block causes of increased vagal tone
 - Treat hypertension if its causing the reflex bradycardia
 - Traction on eye, assistant pressure on carotid
- Vagolytic drugs
 - Atropine
 - Ephedrine if bradycardia + hypotension

209

ARRHYTHMIA: NOT REQUIRING TREATMENT

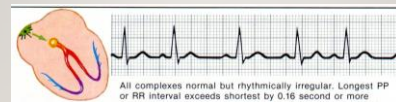
- Wandering atrial pacemaker



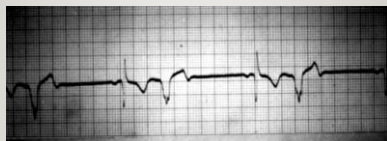
210

ARRHYTHMIA: NOT REQUIRING TREATMENT

- Sinus arrhythmia
- Cyclic variation with inspiration



211



212

ARRHYTHMIAS DURING ANESTHESIA

- Precipitated by catecholamines
- Often during induction
 - Resolve with deepening of the anesthetic
- Underlying causes must be corrected
 - Hypoxemia, hypercarbia
 - Electrolyte abnormalities

213

CASE PRESENTATION

- 22 year old female for extraction of impacted third molars
- ASA Class I
- Requests general anesthesia
- Anesthetic plan
 - Nitrous oxide/ oxygen
 - Intravenous anesthesia



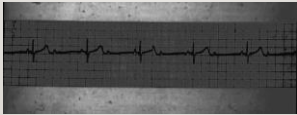
214

ANESTHETIC COURSE

- 50% O₂/ nitrous oxide
- Upon starting the IV the patient becomes pale, diaphoretic and unconscious
- Patient has a 15-30 second seizure
- Remains obtunded and unarouseable
- Heart rate = 40
- ? Cause/management

215

ECG LEAD II



216

TREATMENT OF HEART BLOCK

- Mobitz Type I or II
- Degree of cardiovascular compromise
- Bradycardia treatment

217

OUTCOME

- Doctor started IV
- Administered IV fluids (rapidly)
- Patient remained unconscious with slow heart rate
- Administered 0.4mg atropine X 2
- Rate increased to 72 (regular) with increased consciousness
- Proceed with case?

218

CASE PRESENTATION

- Case cancelled
- Vagal tone can persist for 24-48 hours
 - May not compensate with increased heart rate
- Patient rescheduled:
 - pretreatment with oral sedation at home (triazolam 0.25mg)

219

ORAL PREMEDICATION

- Ease of administration
- Convenient
- Available in different forms

221

PRIMARY OBJECTIVES OF ORAL PREMEDICATION

- Reduced anxiety
- Maintain conscious, cooperative and comfortable state
- Permits local anesthesia with mildly apprehensive patient
- Allows acceptance of IV start

222

SECONDARY OBJECTIVES

- Patient "shows" for appointment
- Allows acceptance of mask or I.V.

223

DISADVANTAGES OF ORAL PREMEDICATION

- Patient (parent) non-compliance
- Empirical dosage
- No titration
- Erratic absorption
- Extended time of action

224

TRIAZOLAM

- May have concerns with "Halcion" in adults
- Not well studied in children
- Can increase effect with sublingual administration
- Caution with grapefruit juice
- Protease inhibitor drugs (end in ".ir")

225

Attenuation of Anxiety in Ambulatory Oral Surgery Patients With Oral Triazolam

STUART E. LIEBLICH, DMD,* AND BRUCE HORSWELL, DDS, MS†

The purpose of this investigation was to determine if the preoperative administration of an oral anxiolytic agent (triazolam) is beneficial in reducing the cardiovascular response to stress and anxiety. Twelve consecutive patients, six who received the drug and six who received a placebo, were monitored from the night before surgery at home until the morning with a Holter monitor. On presentation for surgery, levels of anxiety as well as heart rate and presence of cardiac arrhythmias were determined for the two groups. Patients who received the study medication had an anxiety level on the day of surgery similar to that recorded at an earlier consultation visit, whereas the placebo group showed a tendency toward an increase in anxiety on the day of surgery. There was a significant difference for resting heart rate between the two groups at various intervals associated with the preparation for the surgery. There were no complications related to the medication and, therefore, on the basis of this study, it appears that the administration of an oral anxiolytic agent prior to the patient presenting for surgery is beneficial in reducing the stress and anxiety associated with the operation as well as in reducing some of the cardiac manifestations of this stress.

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METHODS

- Double-blind randomized study
- Control group
- Drug group: 0.25mg triazolam h.s. and 1 hour preop
- Holter monitoring 24 hours before surgery

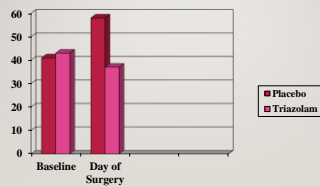
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METHODS

- Subjects Trait Anxiety
- Subjects State Anxiety
- Cardiovascular changes
 - Heart rate
 - Rhythm changes
 - Blood pressure changes

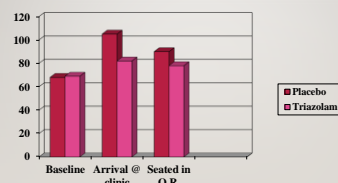
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STATE ANXIETY



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HEART RATE CHANGES



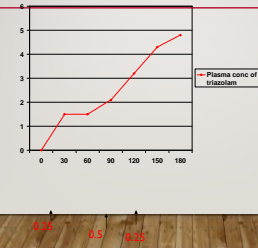
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CONCLUSIONS

- Preoperative administration of an oral benzodiazepine can reduce tachycardia
- ...can reduce state anxiety levels
- Time of greatest anxiety is outside of the office

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PLASMA CONCENTRATION OF TRIAZOLAM AFTER INCREMENTAL SL ADMINISTRATION



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BIS SCORES AFTER INCREMENTAL SL ADMINISTRATION



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CONCLUSIONS

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CLINICAL DATA: CASE

- 24 year old, anxious female
- Extraction of erupted, carious third molars



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PAST MEDICAL HISTORY

- Moderately obese
- Takes "supplements"

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SUPPLEMENTS

- Garlic
 - Increased bleeding
- St John's Wort
 - Prolongs anesthesia, ↑ vasoconstrictors
- Valerian
 - Decreased uptake GABA
- Kava
 - Additive effect of sedatives

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MEDICAL RISKS OF OBESITY

- Pulmonary
- Cardiac
- Endocrine
- Vascular disease
- Wound infection
- Anesthetic calamities
 - Increased length of hospital stay
 - 19.7 days vs. 10.6

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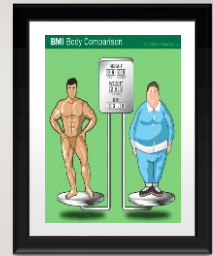
DEFINITION OF OBESITY

- BMI = body weight in kg/height m²
- BMI > 30 kg/m² = obese
- BMI > 40 kg/m² = morbid obesity
- 30% of Americans BMI > 30 kg/m²
- Year 2000:
 - 435,000 deaths due to smoking
 - 400,000 deaths due to physical inactivity and obesity
- Reduction in life expectancy 5-20 years

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IS BMI ACCURATE?

- Also consider neck circumference
- Abdominal girth



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PHARMOKINETICS OF ANESTHETIC DRUGS IN THE OBESE PATIENT

- Benzodiazepines
 - Calculate dose based on ideal weight
- Propofol
 - Use dose based on actual weight due to high Vd
- Local anesthetics
 - Ideal body weight for maximum
- Opioids
 - Ideal body weight + 20%

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CONSULTATION VISIT

- Patient admits to significant anxiety
- Reports avoiding dental care due to anxiety
- No current dentist
- Becomes upset at anesthetic plan which includes IV
- Management?

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INTRAOPERATIVE ANXIETY: TITRATE MEDICATIONS

PREOPERATIVE ANXIETY: LARGELY UNTREATED

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CASE MANAGEMENT

- Administration of 0.25mg of triazolam
 - Prescription for 2 doses, h.s. and 1-2 hours preop

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DAY OF SURGERY

- Midazolam (5mg)
- Meperidine (50mg)
- Propofol (bolus to effect, 110mg total)
- Local anesthesia

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ANESTHETIC COURSE

- 15 minutes into surgery
 - Sustained supraventricular tachycardia (170 bpm)



- Differential
 - Epinephrine response
 - dehydration
- IV Fluids opened up: 250cc D5 1/2 NS

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ANESTHETIC COURSE (CONT'D)

- Open up fluids
- Rate decreases to 120
 - Still regular rate and rhythm

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ANESTHETIC COURSE

- Surgery concludes after total 35 minutes
 - Patient remains obtunded
 - Unable to keep eyes open
 - Responding only to painful stimulation

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MANAGEMENT?

- Additional fluids
- Still unresponsive
- Reversal?
- Administration Flumazenil
 - 0.2mg IV X 3

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ANESTHETIC COURSE (CONT'D)

- Patient becomes arouseable to verbal stimulation
- Starts vomiting
- Continued to "sleep"
- When awakens, patient vomits
- Unable to discharge for 3 hours

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DISCUSSION

- Causes of delayed awakening from anesthesia
- "6 H's and O"
- Hypothermia
- Hypotension
- Hypoglycemia
- Hypoxia
- Hypercapnia
- Heredity
- Overdoseage

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DISCUSSION

- Explanation in her case:
 - Additional dose of triazolam
 - Delayed absorption of triazolam
 - Grapefruit juice increases area under elimination curve by 40%
 - Unrevealed history of bulimia

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DELAYED EMERGENCE

- Drug Effects
- Metabolic
- Neurologic

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DRUG EFFECTS

- Residual anesthetic
- Excess amounts of drugs
 - Local anesthetics additive effect
- Preoperative sedation
- Acute alcohol intoxication/other sedative hypnotic drugs

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METABOLIC EFFECTS

- Hypercarbia: CO₂ narcosis
- Hypoxemia
- Acidosis
 - Increases free drugs
- Hyper/hyponatremia
- Hypothermia

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NEUROLOGIC CAUSES

- New CVA
- Seizures or post ictal state

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MANAGING DELAYED EMERGENCE

- Confirm all IV/inhalational agents are off
- Vital signs (including temperature)
- Neurologic Exam (pupils, cranial nerves, reflexes, response to pain)
- Fingertick glucose
- ABG with electrolytes (if available)
- Reversal agents
 - Naloxone.
 - flumazenil.
 - Physostigmine (if atropine, scopolamine and/or inhalational agents used)

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A stepwise approach to the patient with prolonged unconsciousness.

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IS THERE ANY SCIENCE BEHIND THE CONTROVERSY?

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WHAT MAKE OMS/DENTAL ANESTHESIA/SEDATION PRACTICE UNIQUE?

- Regulated at state level
- "Dental" events often minor
- No credentialing, oversight or peer review
- Incidents / close calls / unsafe conditions exist
 - Kept quiet
 - Not admitted
 - Covered up
 - Forgotten

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WHAT CAN WE DO IN OUR PRACTICES?

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Chronology of Events "A perfect Storm"

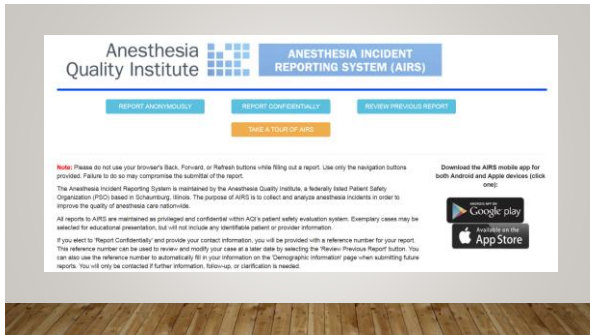
The Deep Sleep, 6000 Will Die or Suffer Brain Damage
Brain Damage
(April 22, 1982)

THE DEEP SLEEP

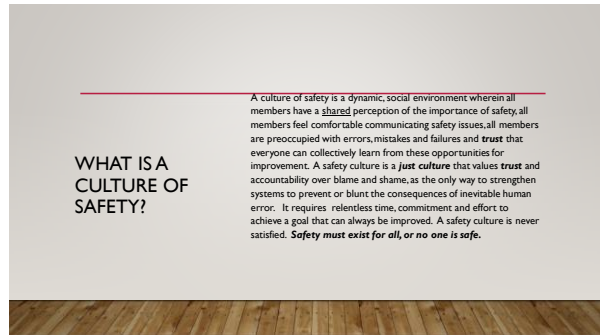
APRIL 22, 1982

- Watershed moment
- 1982 / 1/2000
- 2011 / 1/300,000
- ASA did file
 - Database
 - Culture of safety
 - 2 to 3 years
 - APSP
 - Increased monitors
 - Standards, guidelines, simulation

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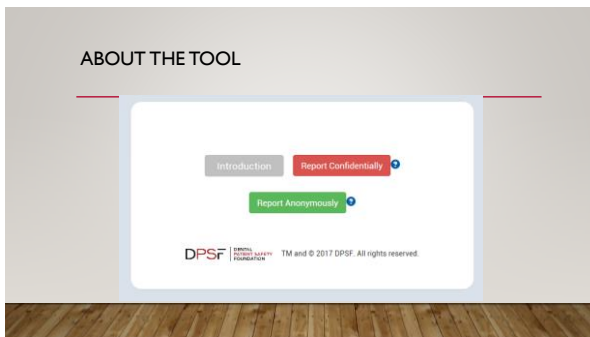
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DPSF DENTAL PATIENT SAFETY FOUNDATION

Shared Learning
From the Dental Patient Safety Foundation Reporting Tool

Case 2017.12A: Patient Fire during Dental Care

What we learned: Although rarely reported in any database, one incident of the following type of the report became aware of last 3 other incidents. One is fire and light energy resulting from the report submission of the incident (DPSF) in the "light energy report" in order. • (Dental chair, heat, plastic, cotton, rubber, paper, alcohol prep, etc.) • (No other images. For information of the user the full report is attached.)

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Family claims daughter's mouth set on fire at dentist

Posted: 10:07 AM Jan 04, 2020 Updated: 2:11 PM Jan 04, 2020
By: KTNV Staff

DENTIST SCORE

TOOD **JACKIE**

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WHO CAN REPORT ?

ANY LICENSED HEALTH CARE PROVIDER

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WHAT GETS REPORTED ?

"PATIENT SAFETY EVENTS"

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ANESTHESIA INCIDENTS
PATIENT SAFETY EVENTS

- Incidents**
 - events that reach the patient, whether or not harm was done
- Near misses (close calls)**
 - events that do not reach the patient
- Unsafe conditions**
 - Circumstances that increase the probability of incident or near miss

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DPSF DENTAL PATIENT SAFETY FOUNDATION

- Create awareness**
 - Improved visibility of safety initiatives
- Provide education**
 - Practice advisories
 - Videos
 - Social media
 - Newsletters

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WHAT CAN WE DO IN OUR PRACTICE?

- Everybody works safely, feels safe
- No fear of reporting safety issues
- Errors are opportunities for improvement
- Just not just happen
- "dynamic non-event"
- DDS, staff, legal entities, all organizations

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CHALLENGE TO ALL: HOW DO WE MEASURE PATIENT SAFETY?

- Its it the presence or absence of adverse events? (registry)
- Number of safety practices integrated into our routines

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HOW CAN YOU HELP?

- Make reports: remember no discovery is allowed per US law
- Review reports: subscribe to DPSF
- "safety for all, or nobody is safe"
- 0 harm

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I'LL RECOMMEND ONE SPECIFIC PIECE OF EQUIPMENT:



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THANKS FOR YOUR INTEREST!

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