Airway Burns: Awake Intubation • PPE • Scene Safety • Mechanism of injury or illness Scene • Number of patients Assessment Need for additional resources • Consider C-Spine precautions • General impression LOC Patent? Suction? Airway Inspect for burns Inspect for swelling • Hoarse voice? Depth and rate Supplemental O2 Breathing NRB or Nasal • Wheezes? 41/2% Circulation 9% 9% Rapid body • Estimate burn % survey Move to truck if not already there (Sanders, 2003) Cool burns/ ensure burning process is stopped Delegate IV Set q3 mins and Vitals Major burns • Explosions/ Trauma Differentials Carbon Monoxide • Other combustible toxins • Need for rapid transport High risk for airway Recognize: deterioration and compromise (Gauglitz & Williams, 2024) Initiate transport & call for assistance • Place patient in semi-recumbent or reverse trendelenburg Connect continuous waveform capnography to BVM Ventilate/ • 3 min of NRB or CPAP (100% O2) • Apply nasal cannula at 15 LPM for apneic oxygenation preoxygenate with high flow O2 • Goal typically CO2 35-45mmHg, SPO2 100% • Address difficult ventilation with MULE if innapropriate CO2 Norepi Drip • Address difficult oxygenation if SPO2 remains <93% (with BiPAP if appropriate) • Adult: 0.1-1mcg/kg/min to max of 4mg in 250 Fluid bolus If Required (conc = 16) Parkland 4cc/kg/% • Titrate to >110 SBP divded by 2 over 8 Optimize • Contra: Mesenteric or PV thrombis, • Set NiBP q 3 min and attach bolus line to patient hours hemodynamics/ • Manage peri-intubation hypotension/ undifferentiated shock if present (<110 SBP) pregnancy, profound hypoxia, hypovolemia prepare to address • Prepare pressor for medical patient with SI (HR/SBP) > 0.8 (push dose or infusion) hypotension Epinephrine Push • Adult: 100mcg in 10cc flush (10mcg/ml) • 10mcg over one min (max 50mcg) Standard practice but • Contra: Nil Including intrinsic Confirm no evidence should be discussed high-minute volume of Metabolic Acidosis with OLMC if impacting with <CO2 decision • BOOTS: Beards, Obesity, Old (>55), Toothless, Sounds (Snoring, stridor, stiff lungs) • MOODS: Mouth Opening, Obstruction (obesity, swelling, trauma, 3rd trimester), Deformity, Stiff lungs) Conduct airway • LEMON: Look externally, Evaluate 3:3:2:1, Mallampati, Obstruction/ Obesity, Neck mobility assessments • DART: Distortion, Access, Radiation, Tumor • The likely failure of one or more of these assessments is a key indicator for awake intubation Succinocholine Ketamine Hypersensitivity Midazolam Fentanyl Hypersensitivity • Known of suspected Hyper K (acute or chronic Hypersensitivty Confirm no AND Hypersensitivity • Relative: Conditions where a significant AND renal failure, glomerular nephritis, lupus nephritis) contraindications to Myasthenia Gravis • Monoamine oxidase inhibitor therapy in elevation of BP is hazardous (uncontrolled • Familiy Hx of malignant hyperthermia or plasma airway medications • Systolic BP less than 100mm Hg the last 14 fays HTN, aneurysm, acute heart failure, angina, pseuchocholinesterase deficiency Compensated shock states • Systolic BP less than 100mm Hg recent MI) • Myopthathies associated with elevated CK OR Call OLMC to discuss awake intubation Explain procedure to pt. and obtain consent Ketamine Mildy sedate patient • Adult: 10mg increments of 100mg in 10mls (10mg/ml) Prepare and test equipement Tell patient to try not to swallow • Start at tongue and posterior oropharynx Lidocaine Suction intermittently • When Pt tolerates initial laryngoscopy spray the vocal cords · Draw back and wait Attempt intubation when you feel patient is ready As soon as tube passes vocal cords Fentanyl **Administer Induction** Ketamine OR AND Midazolam Adult: 1mcg/kg max Medication • Adult: 1.5mg/kg IV • 0.1mg/kg max 5mg IV 100mcg SIVP Succinylcholine Administer Paralytic • Adult: 1.5mg/kg max 150mg IV Confirm depth Post • Inflate cuff Confirm placement advanced Assign parameters airway management Secure Elevate head Reassess vitals Prepare to Consider Epinephrine Push address post intrathoracic • Adult: 100mcg in 10cc flush (10mcg/ml) intubation pressure (slow vent • 10mcg over one min (max 50mcg) hypotension rate or < PEEP) Ketamine Adult: 1mg/kg SIVP Prepare to Contra: Hypersensitivity Fentanyl Midazolam address post AND • Relative: Conditions where a significant • Adult: 100mcg SIVP (titrate to effect) • Adult: 5mg SIVP q 5-10min prn intubation elevation of BP is hazardous (uncontrolled • Contra: Hypersensitivity, MOA in the last 14 days • Contra: Hypersensitivity, Myasthenia Gravis sedation HTN, aneurysm, acute heart failure, angina, recent MI) • DOPES: • D: Laryngoscope Prepare to • D: Dislodgement (Esophageal = EDD & CO2, Maintstem = auscultation & depth at teeth) • O: Suction address • O: Obstruction (Poor compliance or secretions = saline and deep suction, poor sedation and bite block = increase sedation) • P: Needle decompression kit issues with • P: Pneumothorax (Hypotension, JVD & decreased breath sounds = needle decompression assured not R or L mainstem) • E: Check equipment dope • E: Equipment failure: O2 resevoir bag full, BVM able to make positive pressure with no leaks, ETT tube inflated • S: ETCO2 • S: Stacking (Auto Peep = slow ventilations) Reassess vitals Persistent Hypotension? Various Causes of Shock (Gaieski & Mikkelsen, 2024) • Obstructive: Tension Pneumo, Tamponade Consider • Hypovolemic: Hemorrhage causes of • Distributive: Neurogenic, Septic, Anaphylactic shock • Endocrine: Adrenal crisis, DKA • Cardiogenic: MI, ADHF References 1) AHS protocols. (2024, August 8). https://www.ahsems.com/public/protocols/templates/desktop/#home 2) Gaieski, D., & Mikkelsen, M. (2024, October). Evaluation of and initial approach to the adult patient with Hydroxocobalamin undifferentiated hypotension and shock. UpToDate. • Adult: 5g IV in 200cc over 15mins Consider https://www.uptodate.com/contents/evaluation-of-and-initial-approach-to-the-adult-patient-with-undifferentiated-hypotension-and-shock • Contra: Hypersensitivity to it or Vit Cyanide 3) Gauglitz, G. G., & Williams, F. N. (2023, November 15). *Overview of the management of the severely burned patient*. B12 or cobalt or exipients poisoning UpToDate. https://www.uptodate.com/contents/overview-of-the-management-of-the-severely-burned-patient Notes: flush line prior to 4) MacLeod, M. H. (2024b). Forced to Act - Checklist administration 5) Saunders, M. (2003). Rule of nines. Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, Seventh Edition. https://medical-dictionary.thefreedictionary.com/rule+of+nines