

ADULT CONTRAST REACTION MANAGEMENT

HIVES

FEW HIVES

1. Monitor Vital Signs HR/BP/02/ECG
2. Exclude Angioedema/ Bronchospasm
3. Optional 50mg PO/IM or IV Benadryl
4. Monitor Until Symptoms Improve, Document in Epic

BRONCHOSPASM

MILD WHEEZING NORMAL BLOOD PRESSURE

1. Monitor Vital Signs HR/BP/02/ECG
2. Mask O2 6 - 10 L/min If O2 SAT <88% GO TO MODERATE
3. Albuterol Inhaler 2-3 Puffs, if Unresponsive GO TO MODERATE
4. Monitor Until Symptoms Improve, Document in Epic

ANGIOEDEMA

SCRATCHY THROAT PAROXYSMAL SNEEZING MILD OR SUBJECTIVE TONGUE/FACE SWELLING

1. Monitor Vital Signs HR/BP/02/ECG
2. Monitor O2 Saturation Observe Patient 20-30 min
3. If Vital Signs change GO TO MODERATE OR SEVERE
4. Monitor Until Symptoms Improve, Document in Epic

HYPOTENSION BRADYCARDIA

MONITOR ALL PATIENTS FOR 20-30 MINUTES AS REACTIONS MAY PROGRESS



HYPOTENSION TACHYCARDIA

MILD Reaction

Uncomfortable, But Calm Patient

1. Initial Response HR/BP/02/ECG
2. Airway Breathing Cardiac
3. Management/Drugs
4. Disposition

MODERATE Reaction

Agitated and Anxious Patient

1. Initial Response
2. Airway Breathing Cardiac
3. Management/Drugs
4. Disposition

SEVERE Reaction

Unresponsive, Unstable Vital Signs

1. Initial Response
2. Airway Breathing Cardiac
3. Management/Drugs

EXTENSIVE HIVES DIFFUSE ERYTHEMA

1. Monitor Vital Signs HR/BP/02/ECG
2. Exclude Angioedema/ Bronchospasm
3. 50mg IM/IV Benadryl Consider: EPPEN IM X 1 (0.3mg 1/1000)
4. Monitor Until Symptoms Improve, Call Code/911 if needed

O2 SAT <88% OR FAILURE TO RESPOND TO ALBUTEROL

1. Monitor Vital Signs HR/BP/02/ECG Call Code/911 if O2 SAT <88%
2. Mask O2 6 - 10 L/min
3. EPPEN IM X 1 (0.3mg 1/1000) Albuterol Inhaler 2-3 Puffs
4. Call Code/911 if needed

STRIDOR, MODERATE TONGUE/ FACIAL SWELLING

1. Monitor Vital Signs HR/BP/02/ECG
2. Mask O2 6 - 10 L/min
3. EPPEN IM X 1 (0.3mg 1/1000) OR 1/10,000 1 - 3 cc IV EPI Slow Infusion
4. Call Code/911 if needed

HR <40 VASOVAGAL

1. Monitor Vital Signs HR/BP/02/ECG
2. Mask O2 6 - 10 L/min Elevate Legs 60° IVF NL Saline 1L Bolus
3. Atropine 0.6 - 1mg IV may repeat q 3 - 5 min up to 3mg
4. C all Code/911 if needed

HR >10 ANAPHYLAXIS MILD HYPOTENSION

1. Monitor Vital Signs HR/BP/02/ECG
2. Mask O2 6 - 10 L/min Elevate Legs 60° IVF NL Saline 1L Bolus
3. EPPEN IM X 1 (0.3mg 1/1000) OR 1/10,000 1 - 3 cc IV EPI Slow Infusion
4. Call Code/911 if needed

MENTAL STATUS CHANGES UNSTABLE VITAL SIGNS

1. Call CODE 911/BCLS Monitor Vital Signs HR/BP/02/ECG
2. BCLS/Mask O2 6 - 10 L/min May Require Bag Mask IVF NL Saline 1L Bolus
3. 1/10,000 1 - 3 cc IV EPI May repeat up to 1 mg (10cc) ONLY if no IV access EPPEN X 2 IM

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PEARLS

1. Call for help when needed—Use closed loop communication at all times
2. Administer O2 early
3. Do not delay administration of epinephrine in a patient with bronchospasm unresponsive to beta agonist inhaler
4. If patient is obese and reaction moderate consider IV rather than IM epinephrine
5. If administering IM EPI (1:1,000) from a vial rather than EPPEN® dose is 0.3cc and use of a 1B syringe recommended
6. If patient has no pulse and is unresponsive, initiate BCLS/ACLS-intravenous EPI dose 10cc (1mg) 1:10,000
7. BCLS 30 compressions to 2 breaths

PITFALLS

1. If the patient is bradycardic atropine NOT epinephrine is the appropriate first line drug
2. Do not hesitate to administer IM epinephrine early for the treatment of a moderate contrast reaction
3. Before administering the EPPEN®, revisit instructions on the device to avoid common errors
4. EPPEN® must be held in place for 10 seconds for full dose delivery. Preferred site of injection is the thigh
5. Reserve Benadryl for the treatment of hives as it thickens secretions (contraindicated in bronchospasm and angioedema) and can exacerbate hypotension
6. Do not confuse the IM and IV dose/route of epinephrine administration-DOUBLE CHECK VIAL CONCENTRATION
7. The EPPEN® is for IM and ADULT use only

References

1. Manual on Contrast Media V8 American College of Radiology. www.acr.org/Quality-Safety/Resources/Contrast-Manual. Accessed on 10/5/2012
2. Segal AJ, Bush WH. "Avoidable Errors in Dealing with Anaphylactoid Reactions to Iodinated Contrast Media" Investigative Radiology, vol 40, number 3, March 2011 p
3. EPPEN® 0.3mg epinephrine auto-injector. Dey Pharma, LP, Napo, CA 94558

RADIOLOGIST ADULT CONTRAST REACTION SMART CARD®

Approach to Evaluating and Managing
Patient Contrast Reactions Pocket
Treatment Algorithms Based on ACR®
Manual on Contrast Media v8 Pearls
and Pitfalls



+ ACCE Response

ASSESS THE PATIENT

- » See the Patient Immediately
- DO NOT diagnose over the phone
- » Introduce yourself to the nurse, tech and patient
- » Obtain a brief history and COLLECT VITALS with focused physical exam as appropriate
- » Is the patient in distress?
- » Check mental status
- » Is the patient hoarse or having difficulty speaking?
- » Evaluate for bronchospasm
- » Evaluate mucous membranes
- » Classify the level of severity (mild, moderate, severe)
- Call for help if needed

CONSTRUCT A "WORKING" DIAGNOSIS

- » Allergic Contrast Reaction
- » Anxiety
- » Adverse Reaction
- » Vasovagal
- » Seizure
- » Cardiac

COMMUNICATE ASSESSMENT AND TREATMENT PLAN TO PATIENT AND STAFF

EXECUTE MANAGEMENT

- » Use closed loop communication

+ Management of Acute Reactions in Adults ACR Manual on Contrast v8

URTICARIA

1. No treatment needed in most cases
2. Benadryl PO/IM/IV 25-50mg
3. If severe or widely disseminated: EPPEN[®] IM (1:1,000) 0.3cc

BRONCHOSPASM

1. Give O2 10 liters/min via mask
2. Give *beta-agonist inhalers* 2 to 3 puffs, repeat as necessary. If unresponsive to inhalers, use SC, IM, or IV epinephrine.
3. Give epinephrine SC or IM (1:1,000) 0.1-0.3 ml (= 0.1-0.3 mg) or, especially if hypotension evident, epinephrine (1:10,000) slowly IV 1-3 ml (= 0.1-0.3 mg)
4. Call for assistance for severe bronchospasm or if O2 saturation <88% persists

PULMONARY EDEMA

1. 10 L O2 via mask
2. Elevate Torso
3. Give *furosemide (Lasix) 20-40mg IV, slow push*
4. Consider morphine 1-3mg IV
5. Transfer to ICU or ED

ANGIOEDEMA

1. 10 L O2 via mask
2. *EPI SC (1:1,000) 0.3cc or IF hypotensive EPI (1:10,000) slow IV 3cc, may repeat up to maximum of 1mg*
3. If unresponsive to therapy, seek appropriate assistance

SEVERE HYPERTENSION

1. 10 L O2 via mask
2. *Mitroglycerine 0.4mg tablet sublingual (may repeat X3)*
3. If unresponsive to therapy, labetalol 20 mg IV
4. Transfer to ICU or ED

SEIZURE

1. 10 L O2 via mask
2. *Diazepam (Valium) 5mg IV or midazolam (Versed) 0.5mg - 1mg IV*
3. Monitor vitals
4. Call CODE. Transfer to ICU or ED

HYPOTENSION WITH TACHYCARDIA (ANAPHYLACTOID)

1. 10 L O2 via mask
2. Rapid IV fluid/elevate legs 60°
3. IF Poorly Responsive: *EPI IM (1:1,000) 0.3cc or IF hypotensive EPI (1:10,000) slow IV 3cc, may repeat up to maximum of 1mg*
4. If unresponsive to therapy, seek appropriate assistance

HYPOTENSION WITH BRADYCARDIA

1. 10 L O2 via mask
2. Rapid IV fluid/elevate legs 60°
3. Give *atropine 0.6 - 1mg slowly if patient does not respond to step 1 and 2. Can repeat atropine to total dose of 2-3mg*
4. If unresponsive to therapy, seek appropriate assistance