

Location: ER

CC: A 28-year-old Caucasian female with sudden onset of shortness of breath and swelling of the face

Vital signs:

Her temperature is 36.7C(98F), blood pressure is 100/62 mm Hg, pulse is 126/min, and respirations are 38/min.

HPI: A 28-year-old Caucasian female is brought to the emergency room by her friend because of the sudden onset of shortness of breath and swelling of her lips, face and extremities. The symptoms have started suddenly after a bee sting. She denies any other medical problems. Other history is unobtainable.

How do you approach this patient?

You have a 28-year old, healthy, female with no other medical problems with sudden onset shortness of breath and what appears to be an asymmetric edema of the body after a bee sting. This is all quit consistent with anaphylactic reaction with angioedema. Other common acute conditions such as asthma exacerbation, pneumothorax, acute pulmonary embolism, and panic attacks are unlikely given the asymmetric edema of the body.

The first step in the management of this patient is to secure airway, breathing and circulation. In all patients with airway compromise or vasomotor instability, epinephrine should be promptly administered.

Order:

Pulse oximetry, stat
Oxygen inhalation, stat
Cardiac monitor, stat
Continuous BP monitoring, stat
IV access, stat
Epinephrine, intramuscular, stat (repeat every 15 to 20 minutes if there is no improvement)
Normal saline, IV, bolus
Normal saline, IV, continuous

*Advance clock by 5 minutes and repeat epinephrine if needed.

Here are the results:

She is saturating 82% on room air and 93% on 4-liters oxygen
She is feeling better with one dose of epinephrine

*If the patient is having severe respiratory compromise (cyanosis, stridor, low oxygen saturations despite of 100% oxygen), she should be intubated and mechanical ventilation is required. You can order like:

Intubation, endotracheal, stat
Ventilation, mechanical, stat

Now, perform the physical exam:

General
Skin
HEENT/Neck
Lungs
Cardiovascular
Abdomen
Extremities

Physical exam findings:

The patient is very anxious, frightened and in mild to moderate respiratory distress. There is

no skin rash. Face, lips, neck and tongue are swollen. Pupils are equal and reacting to light. Mucus membranes are dry. Diffuse expiratory wheezing is present. Extremities are acyanotic and swollen. Non-pitting edema is present in an asymmetric fashion over all extremities.

Review orders:

ABG, stat
CXR, portable, PA, stat
12-Lead EKG, stat
CBC with diff, stat
BMP, stat
Albuterol, nebulization, continuous (for bronchospasm)
Hydrocortisone, IV, continuous
Diphenhydramine, IV, continuous
Ranitidine, IV, continuous

Here are the results:

ABG- Po2- 70% on 4-lit oxygen, PCO2 -30, pH- 7.5 (consistent with respiratory alkalosis)
BMP is insignificant
CBC-WBC count is elevated at 12,000/cmm with mild left shift; Hb and platelets are normal.
EKG shows sinus tachycardia
CXR is within normal limits

Review orders:

Transfer to ICU
Dopamine, IV, continuous - This can be started if the patient is still hypotensive despite of receiving intravenous fluids.

Management in ICU:

Bed rest
Vitals routine (per ICU protocol)
Pulse oximetry, routine, every 4 hours
Urine output, routine
Diet, NPO

*Examine the patient for every 30 minutes in the beginning

Results:

Patient is improving with the treatment

*Usually the case will end if you manage this much; in case if it continue

Discussion:

Once the patient is improved change the location to ward/floor
Now discontinue IV fluids, IV steroids, IV diphenhydramine and other IV medications
Start prednisone, oral, continuous
Start diphenhydramine, oral, continuous

Discharge planning:

Discharge the patient after 24-hours of observation. Schedule an outpatient radioallergosorbent test (RAST) testing after 6-weeks. Also, request an immunologist consult as an outpatient. If they ask reason, type: Patient with recent episode of anaphylaxis. Please evaluate with skin testing. Order medical alert bracelet and counsel about medication compliance. Ideally, we should provide preloaded syringes with epinephrine (EpiPen) to the patient and advice avoid allergens.

*USMLE software doesn't have options for EpiPen and avoid allergens.

Final diagnosis:

Acute anaphylaxis with angioedema from Bee sting

Discussion:

Management of anaphylaxis starts with rapid assessment of airway and breathing. Airway should be secured and patients may require intubation if there is significant upper airway edema, stridor, cyanosis, or if the patient is not improving with oxygen inhalation (from bronchospasm). The drug of choice for acute anaphylaxis is epinephrine, typically given intramuscularly in mild to moderate cases; intravenous epinephrine should be given in patients with severe hemodynamic instability, severe upper airway edema, or severe bronchospasm. If the patient is on beta-blockers for some reason, the effect of epinephrine may not be prompt and enough; in these patients glucagon is given. Once the airway and breathing is secure, hemodynamic status should be assessed. Patients may require several liters of crystalloids to maintain the perfusion. If the patient is not responding to crystalloids, vasopressors such as dopamine or phenylephrine should be started.

A combination of both H1 and H2 blockers should be given to all patients. Corticosteroids are also routinely given to prevent the late phase reaction.

Once the acute episode is over, the patient should have formal evaluation with allergist. The patient should also have skin tests and RAST to identify the allergen. Patient's should be educated and provide EpiPen.

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