

Emergencies A Series - 8

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Status Asthmatics / Acute Severe Asthma

In this era of nebulizers, acute severe asthma is rare, and this condition rarely needs parental broncho dilators. (1) Here we will discuss the history of a patient who had severe breathlessness not able to be managed with a nebulizer. Secondly, we will make a note of parental broncho dilators, parental /oral steroids, oxygen/ heliox, steroid resistance, antibiotics, and soda bicarb. It's a life-threatening emergency that requires rapid aggressive treatment and refers to severe broncho spasms that do not respond to aggressive therapy within 30 to 60 min (2) Acute severe Asthma patients will have the inability to control one sentence in one breath. Mostly the respiratory rate will be more than 25/min and heart rate >110 bpm (4) Features of Life-threatening Asthma are a Silent chest, feeble respiratory effort, exhaustion, bradycardia, hypotension or arrhythmia.

Very severe Life-threatening attack.

Here, the PCO₂ will be high > 6Kpa, severely hypoxemic despite treatment with oxygen. A Low or falling arterial pH A note on the pathophysiology of Asthma (2,3) Airway inflammation and bronchoconstriction occurs. Mucus plugs increase airway resistance. There is increased physiologic dead space and hyperinflation of the lung. V/Q mismatching and shunting. Decrease in diastolic filling and cardiac output. Also, there is an increased diaphragmatic and accessory muscle workload. Increased carbon dioxide production and increased oxygen consumption. respiratory acidosis and metabolic acidosis occur. (2, 3)

Management

Oxygen

All patients should receive supplemental oxygen to maintain Spo₂ >90%, 95% in pregnancy.

Heliox

It is 10 times costlier than oxygen, its advantage over oxygen is, it prevents turbulence in the airway.

Steroids to be given promptly to all patients.

Corticosteroids

Inj Hydro cortisone 100-200 mg IV stat to be given. It is not inferior to Inj methyl prednisolone. A small proportion of patients are resistant to steroid. Those who received medication such as hydroxychloroquine methotrexate azathioprim because of the reduced glucocorticoid receptor number in these cases. (5)

Parental Broncho dilators

Adrenalin

Dose: 1 in 1000 solution of 0.3 ml to 0.5 ml every 20 min subcutaneously for 3 doses, if no response with the initial dose.

Adrenalin is useful in cardiac arrest. It should be used cautiously in patients older than 40 and those with cardiovascular disease.

Other uses are- In acute Angioneurotic edema, bee stings with hypo tension and acute fall of BP due to drugs.

It is used in serum sickness; we had a case of snake bite treated with antsnake venom had intense pruritus and was not responding to

antihistamines/steroids responded to a single dose of adrenalin. Another patient who received a platelet transfusion caused hypo tension (80/60) mm Hg was normalized with a single dose of adrenalin but not with other drugs. We have treated a case of multiple bee stings with shock.

A case of drug allergy due to IV Inj Ranitidine could be due to preservative phenol. He had hypotension, severe wheezing, and congested eyes and was treated with IV fluids, steroids and adrenalin.

Terbutaline

Its action is similar to adrenalin. Advantage – It is longer acting Dosage- 0.25 to 0.5ml subcutaneous every 20 min. experience showed an asthmatic on second referral was improved with a single dose of terbutaline.

Aminophylline infusion

A loading dose of 500 mg over 20 min, should be avoided if the patient is on oral theophylline. Instead, a maintenance dose of 0.5 mg/kg/Hr IV infusion. Adverse effects: nausea, vomiting, arrhythmia, seizures if exceeding the recommended dose. (1) Cardiac monitoring should be done. If there are signs of arrhythmia infusion of aminophylline dose may be decreased. Intravenous magnesium 2gm over 20 min may be of use Antibiotics Routine use of IV Antibiotics may be useful.

Soda-bicarb

In acute severe asthma, there is metabolic as well as respiratory acidosis. Soda bi-carb infusion is helpful in this situation. Avoid Aspirin

/Beta blockers even beta blocker eye drops. Both can provoke Asthma in susceptible individuals.

Case History

A 27- year old female, was brought to the ED around 12:30 AM midnight with severe respiratory distress. Heart sounds were heard, and tachycardia was present. Her heart rate is approximately 130 -140 bpm, chest was silent. Breath sounds are not audible. She has a known asthmatic since childhood. Started on oxygen and she is not in a position to receive nebulizer therapy because of severe respiratory distress. She was started on 100mg IV hydrocortisone. 2 doses of 0.3 ml adrenalin at an interval of 5 min showed only subtle/marginal improvement. A maintenance dose of IV aminophylline was started and IV soda bicarb infusion. Salbutamol nebulizer Q4H ipratropium every 4 hours. The next morning around 7:30 AM, she had partial relief with 50% subjective improvement. Heart rate 120pm. Spo2 93% without oxygen. Squeaky wheeze is present in scattered areas of both lung fields. Infusion of soda bicarb and aminophylline was stopped. Treatment with other drugs was continued. Discharge on the 7th day with clear lungs and advised Montelukast /predmet and sero flow inhaler 25/250.

Reference

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