bronchial asthma

CASE SCENARIO

A 26 yr old patient presented in ER with complaint of recurrent episodes of shortness of breath and chest tightness for 1 month. SOB was progressive, which got worse on exposure to cold weather and perfumes. It was associated with cough which was worse at night. Patient lives in a poorly ventilated room.

ON EXAMINATION

- pulse=80/min B.P= 120/60, resp. rate= 24/min Temp=98 F
- On auscultation bilateral rhonchi are audible all over the chest.

EPIDEMIOLOGY

- 300 million people worldwide are affected by asthma leading to approximately 250,000 deaths per year.
- . It is estimated that asthma has a 7-10% prevalence worldwide.

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- 300 million people worldwide are affected by asthma leading to approximately 250,000 deaths per year.
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- Nearly 20 million persons 12% of Pakistani adult population — are suffering from asthma.
- The prevalence of asthma in Pakistan is increasing day-by-day with an annual increase of 5% of which 20% to 30% are children between 13 and offerears of age.

Asthma

"A chronic inflammatory disorder of the airways in susceptible individuals, characterized by widespread variable and recurring symptoms of cough, wheezing, dyspnea and chest tightness

Asthma

- "A chronic inflammatory disorder of the airways in susceptible individuals, characterized by widespread variable and recurring symptoms of cough, wheezing, dyspnea and chest tightness
- · Reversible airflow obstruction

Pathophysiology

Airflow limitation

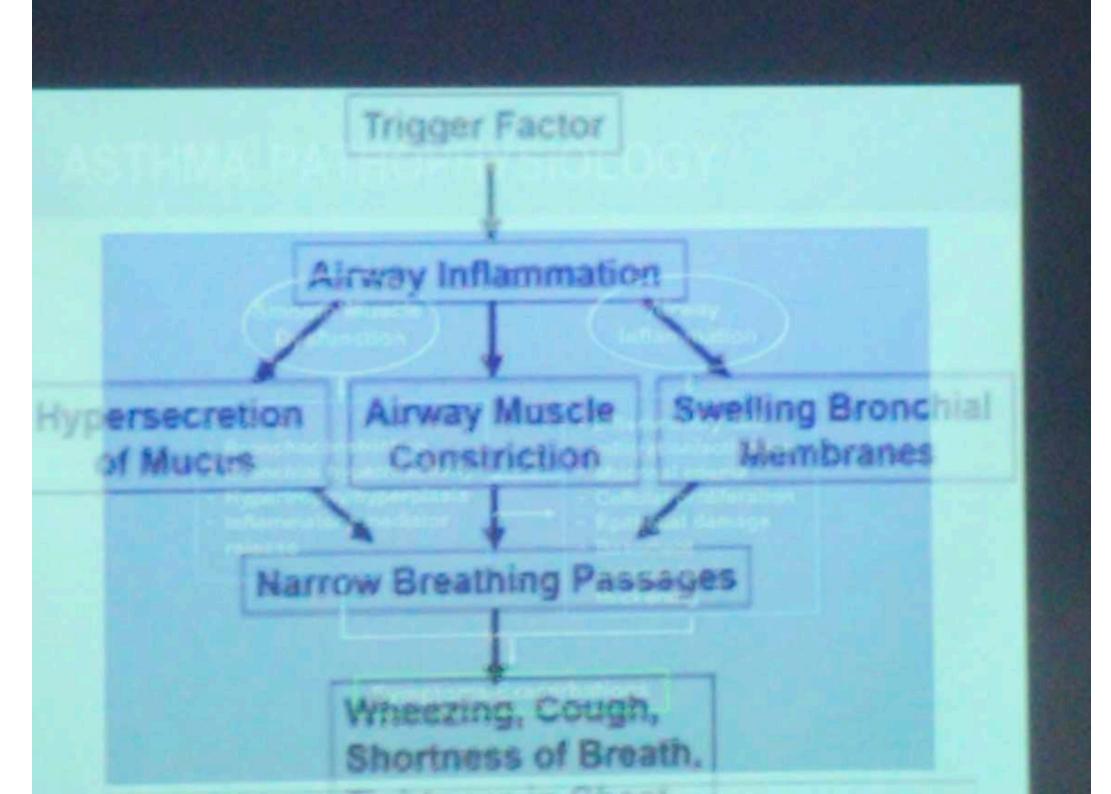
USUALLY REVERSES SPONTANEOUSLY OR WITH TREATMENT

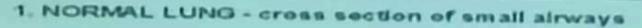
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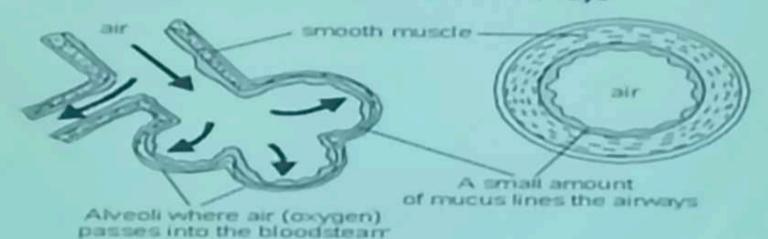
EXAGGREATED BRONCHOCONSTRICTION TO WIDE RANGE OF STIMULI

Airway inflammation

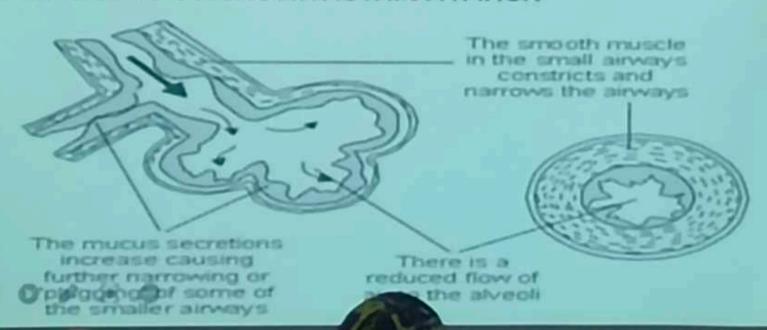
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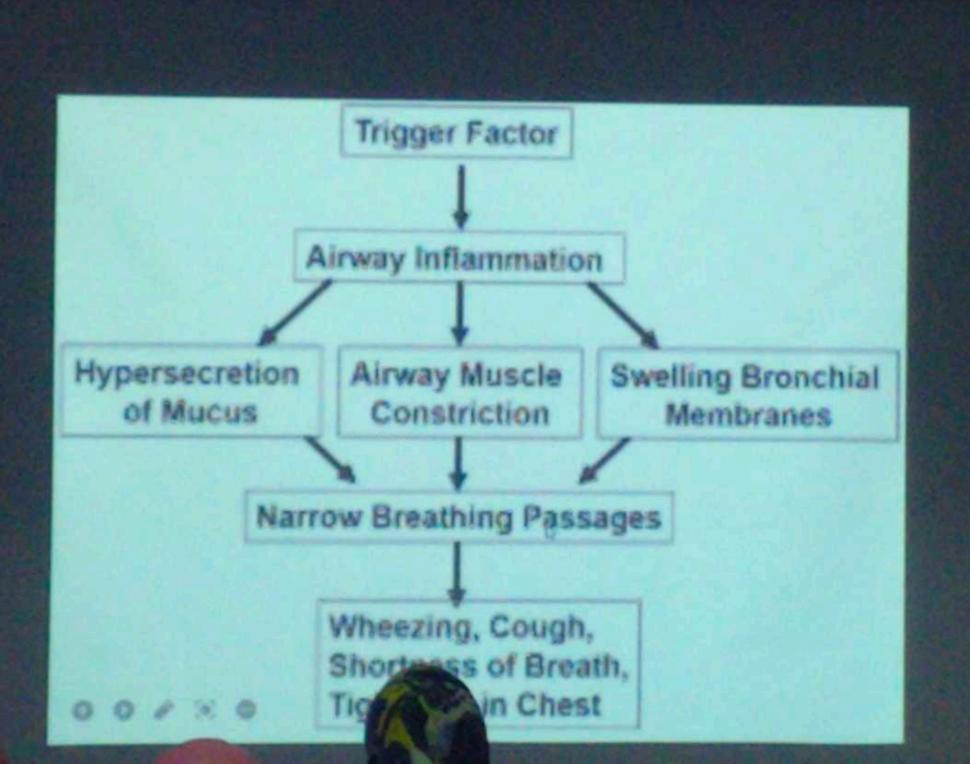


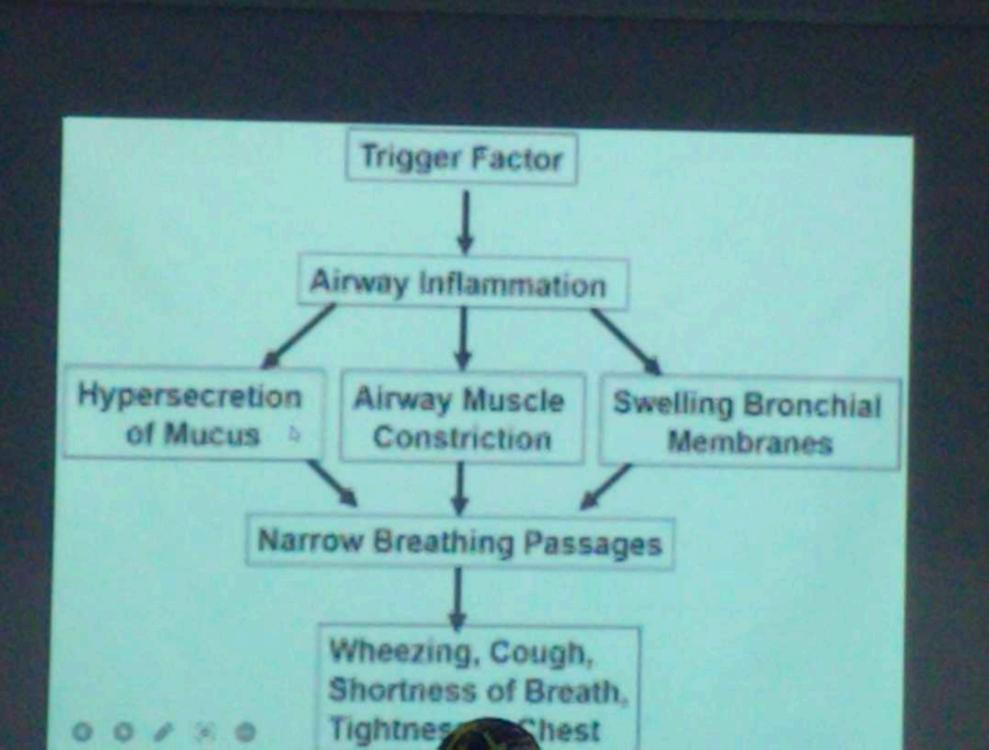




2. THE LUNG DURING AN ASTHMA ATTACK







Healthy Ainway Severe Asthma Airway smooth muscle: Hyperesponsiveness Constriction Thickening Sub-epithelial information and fibrasis Mucus hypersecretion and impaired mucus clearance Increased ensinghits andior neutrophils in alreay timen

Precipitating Factors

What are the Triggering Factors?

External

- · Non-specific
- Specific
- · sessonal

Internal

- · Emotions
- Parannial
- Elelenty



- House dust mites
- Pollens
- Food, fish, egg, milk, pulses etc...
- Chemical Irritants
- Drugs (aspirin, beta blockers)

Specific

- Antigens- proteins
- Antibodles- immunoglobulin







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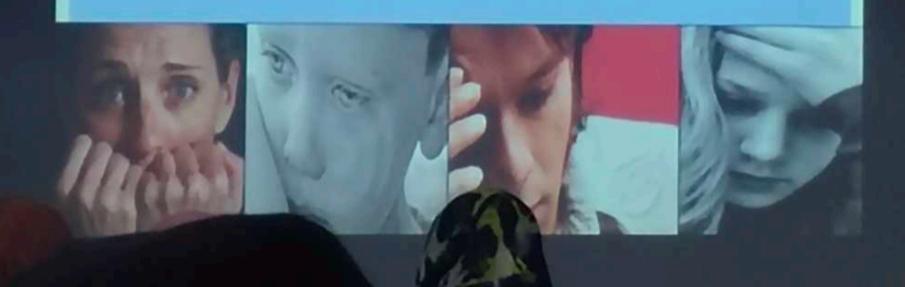




Internal triggers

Personality: thin built, emotionally sensitive, inability to express, suppressed feelings.

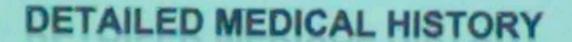
"If she cannot cry with tears, she wheezes and sneezes"



History and Clinical Features

DETAILED MEDICAL HISTORY

Consider a diagnosis of asthma and performing spirometry if any of these indicators is present:



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 Wheezing—(Lack of wheezing and a normal chest examination do not exclude asthma.)

DETAILED MEDICAL HISTORY

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- Wheezing—(Lack of wheezing and a normal chest examination do not exclude asthma.)
- > History of any of the following:
- Cough, worse particularly at night
- Recurrent wheeze
- Recurrent difficulty in breathing
- Recurrent chest tightness



DETAILED MEDICAL HISTORY

Consider a diagnosis of asthma and performing spirometry if any of these indicators is present:

- Wheezing—(Lack of wheezing and a normal chest examination do not exclude asthma.)
- History of any of the following:
- Cough, worse particularly at night
- Recurrent wheeze
- Recurrent difficulty in breathing
- Recurrent chest tightness
- Symptoms occur or worsen in the presence of trigger
- > Symptoms occur or worsen at night, awakening the patient

Clinical Examination

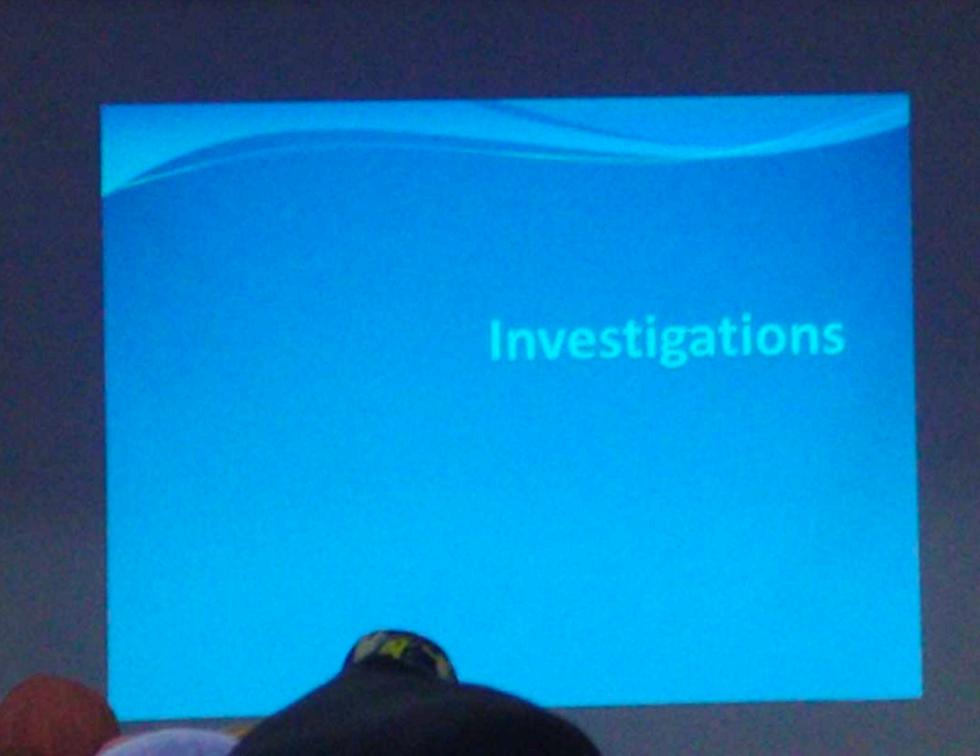
- Hyperexpansion of the thorax, use of accessory muscles; appearance of hunched shoulders.
- wheezing during normal breathing, or a prelonged phase of forced exhalation(typical of airflow obstruction).
- > Silent chest is a medical emergency(so severe obstruction that there is no airflow to cause wheeze)

Clinical Examination

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- Increased nasal secretion, mucosal swelling, and/or nasal polyps.
- Atopic dermatitis/eczema or any other manifestation of an allergic skin condition.
- > Tachycardia/ bradycardia
- > Hypetension / pulsus para

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INVESTIGATIONS

PULMONARY FUNCTION TESTS, FEV1, VC, PEF

- FEV1 ≥ 15% (200ml) increase following administration of bronchodilator/ trial of corticosteroid.
- >20% diurnal variation on ≥ 3 days in a week for 2 weeks on PEF diary.
- FEV1 ≥ 15% decrease after 6 mins of exercise.

OTHER INVESTIGATIONS:

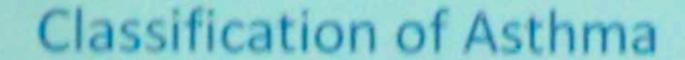
- X-ray chast
- Arterial blood gases, pco2, po2
- Skin hypersensitivity tests
- CBC peopheral eosinophilia
- · Serum IgE levels



Classification of Asthma

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- Cough Variant asthma
- Occupational Asthma
- Exercise Induced Asthma



- Cough Variant asthma
- Occupational Asthma
- Exercise Induced Asthma
- Asprin induced asthma

Clinical Severity of Asthma

Symptoms

- > Speech
- Night time awkenings
- Frequency of SOB

Signs

Clinical Severity of Asthma

Symptoms

- Speech
- Night time awkenings
- Frequency of SOB

Signs

- Respiratory rate
- Blood pressure

Severity in patients à 12 years of age	Symptom frequency	Night time symptoms	%FEV, of predicted	FEV, Variability	Use of short- acting beta; agonist for symptom control
Intermittent	≤2 per week	≤2 per month	≥80%	<20%	≤2 days per week
Mild persistent	>2 per week but not daily	3-4 per month	≥80%	20-30%	>2 days/week but not daily
Moderate persistent	Daily	>1 perweek but not nightly	60-80%	>30%	Daily
Severe persistent	Throughout the day	Frequent (often	<60%	>30%	Several times per day

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Moderate persistent	Daily	>1 per week but not nightly	60-80%	>30%	Daily
Severe persistent	Throughout the day	Frequent (often	<60%	>30%	Several times per day



19.25 Immediate assessment of acute severe asthma

Acute severe asthma

- PEF 33-50% predicted (< 200 L/min)
- Respiratory rate ≥ 25 breaths/min
- Heart rate ≥ 110 beats/min
- Inability to complete sentences in 1 breath

Life-threatening features

- PEF < 33% predicted
 (< 100 L/min)
- SpO₂ < 92% or PaO₂ < 8 kPa (60 mmHg) (especially if being treated with oxygen)</p>
- Normal or raised PaCO₂
- · Silent chest

- Cyanosis
- Feeble respiratory effort
- · Bradycardia or arrhythmias
- Hypotension
- Exhaustion
- Confusion
- · Coma

Near-fatal asthma

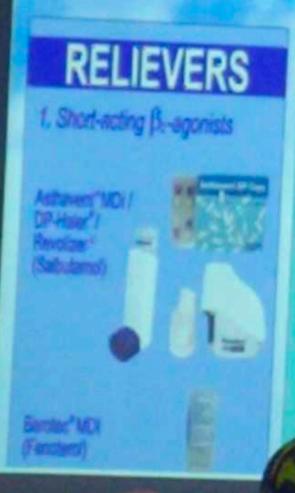
 Raised PaCO₂ and/or requiring mechanical ventilation with raised inflation pressure

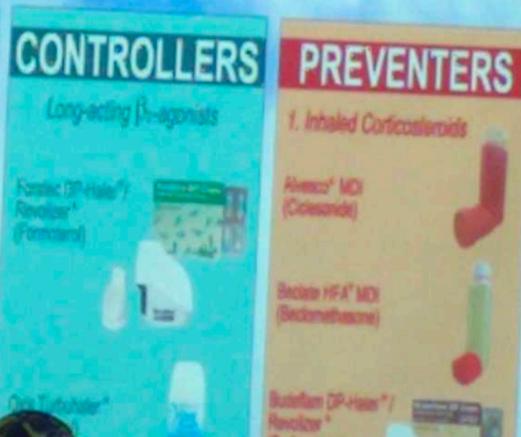
HOW TO MANAGE BRONCHIAL ASTHMA

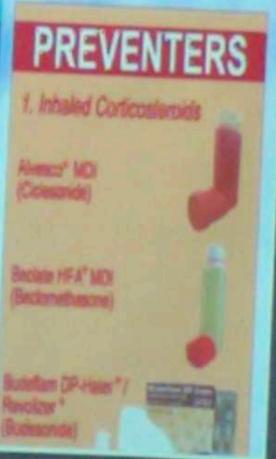
GOALS OF ASTHMA MANAGEMENT:

- Educate patient
- Achieve and maintain control of symptoms
- Prevent asthma exacerbations
- Maintain pulmonary functions as close to normal as possible
- Avoid adverse effects from asthma medications
- Prevent development of irreversible airflow limitation
- Prevent asthma mortality

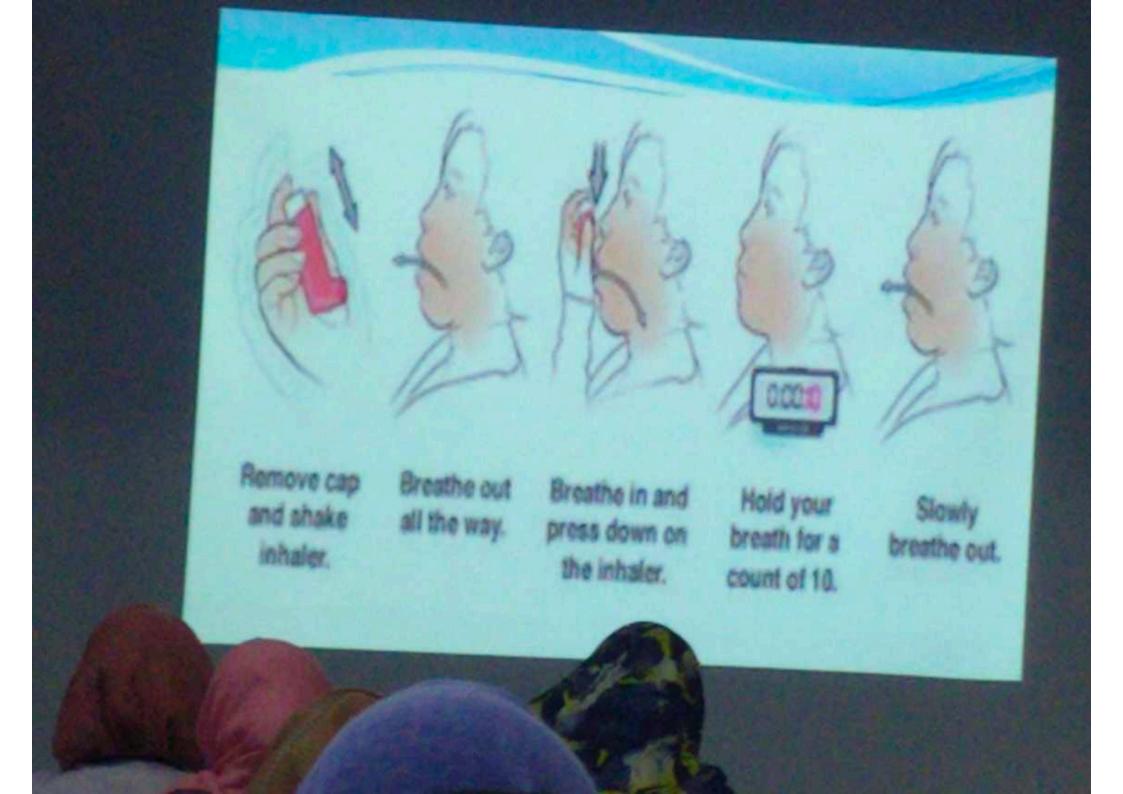
ASTHMA DRUG THERAPY











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Add inhaled steroid 200-800 mcg/day*

400 mcg is an appropriate starting dose for many patients

Start at dose of inhaled steroid appropriate to severity of disease. THE REAL PROPERTY.

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STEP

Supplier process

- Add inhaled long-acting β, agonist (LABA)
- 2. Assess control of asthma:
 - * good response to LABA - continue LABA
 - benefit from LABA but control still inadequate
 - continue LABA and increase inhaled steroid dose to 800 mcg/day* (if not already on this dose)
 - * no response to LABA
 - stop LABA and increase inhaled steroid to 800 mcg/ day.*If control still inadequate, institute trial of other therapies, leokotnene receptor antagonist or SR theophylline

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STEP

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Consider trials of:

- increasing inhaled steroid up to 2000 mcg/day*
- * addition of a fourth drug e.g. leukotriene receptor antagonist, SR theophylline, By agonist tablet



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STEP 1

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STEP 2

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STEP 3

licited publishes theraper

Use daily steroid tablet in lowest dose providing adequate control

Maintain high dose inhaled steroid at 2000 mcg/day*

Consider other treatments to minimise the use of steroid tablets

Refer patient for specialist care:

STEP 2

Person

STEP 1

STREPTORCS



THE RESERVE

STEP 5

Continuous or frequent

Moderate asthma

PEF > 50% best or predicted

- Speech normal
- Respiration < 25 breaths/min
- Pulse <110 beats/min

Treat at home or in surgery and ASSESS RESPONSE TO TREATMENT.

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Acute severe asthma

INITIAL ASSESSMENT

PEF 33-50% best or predicted

FURTHER ASSESSMENT

- Can't complete sentences
- Respiration ≥25 breaths/min
- Pulse ≥110 beats/min

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MANAGEMENT

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TREATMENT

- Oxygen 40-60% if available
- High dose fis bronchodilator.
 - Ideally via oxygen-driven nebuliser (safbutamol 5 mg or terbutaline 10 mg)
 - Or via spacer (4-6 puffs fgiven one at a time and inhaled separately) repeated at intervals of 10-20 minutes)
- Preditisolone 40-50 mg or IV hydrocortisone 100 mg
- # If no response in acute severe asthma: ADMIT

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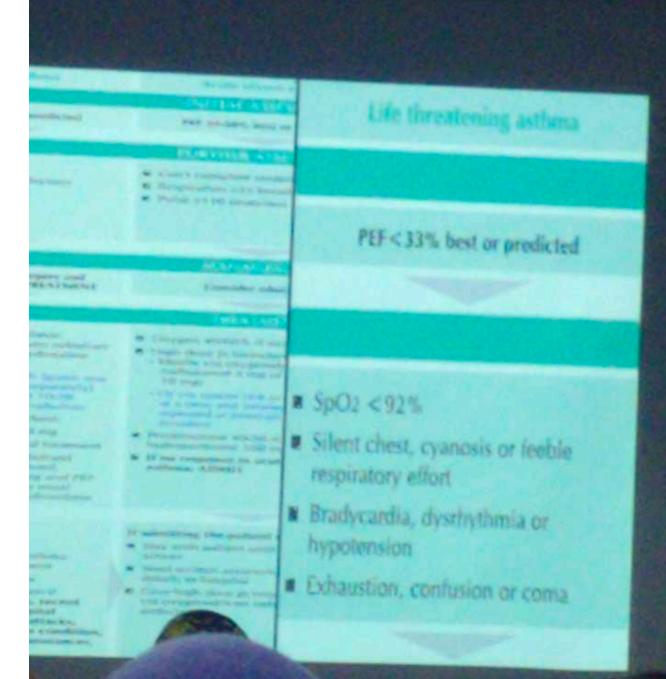
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