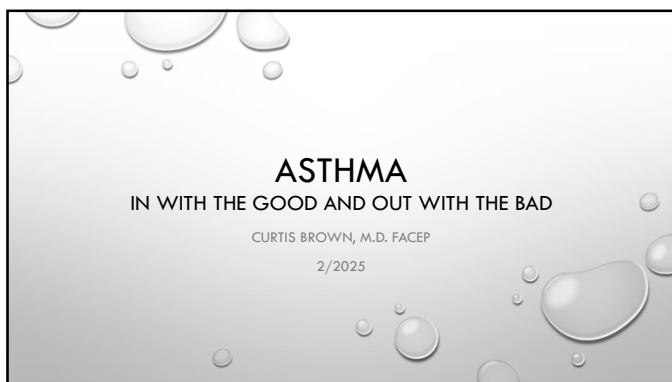
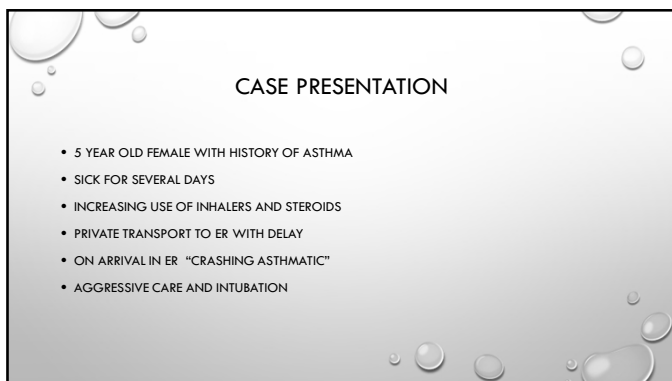


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3

ER COURSE

- ABC
- O2
- INHALED BETA AGONISTS
- INHALED ANTICHOLINERGICS
- IV STEROIDS
- SC EPINEPHRINE
- INTUBATION

4

***** KEY CONCEPTS*****

- ASTHMA IS A CHRONIC INFLAMMATORY DISORDER
- USUALLY REVERSABLE WITH TREATMENT
- MOST MANAGED WITHOUT EXTENSIVE TESTING
- MOST ARE TREATED IN ER AND DISCHARGED HOME
- SEVERE ASTHMA REQUIRES AGGRESSIVE, STEPWISE TREATMENT
- SEVERE EXACERBATION = INABILITY TO SPEAK, TRIPOD POSITIONING, MENTAL STATUS CHANGE, TACHYPNEA, TACHYCARDIA, ACCESSORY MUSCLE USE, POOR AIR MOVEMENT, SILENT CHEST

5

EPIDEMIOLOGY

- USA >> 25 MILLION PEOPLE
- MOST COMMON CHRONIC CHILDHOOD DISEASE 9.5 % OF KIDS
- USA >> 2 MILLION ED VISITS/YEAR
- >> 4,000 DEATHS/YEAR 185 KIDS DIE EACH YEAR
- 10-25 % REQUIRE ADMIT

6

PATHOPHYSIOLOGY

- CHRONIC AIRWAY INFLAMMATION
- AIRWAY NARROWING AND PLUGGING WITH MUCUS AND INFILTRATES
- AIRWAY HYPERRESPONSIVENESS, HYPERINFLATION, ATELECTASIS, AND V/P MISMATCH
- BRONCHOCONSTRICTION
- INCREASED AIRWAY RESISTANCE AND DECREASED FLOW
- INCREASED WORK OF BREATHING AND DYSPNEA
- WHEEZING, SOB, CHEST TIGHTNESS AND COUGH

7

**A WHEEZE IS A WHEEZE IS A WHEEZE
UNTIL IT ISN'T**

- WHAT IS YOUR DIFFERENTIAL OF WHEEZING

8

DIFFERENTIAL DIAGNOSIS

- CHF
- PE
- ARDS
- FOREIGN BODY ASPIRATION
- MEDICATIONS
- AIRWAY OBSTRUCTION
- VOCAL CORD DYSFUNCTION
- GE REFLUX
- ALLERGIC REACTION/ANAPHYLAXIS

9

DIAGNOSIS IS CLINICAL

- TYPICAL EXACERBATION VS SOMETHING NEW
- PULSE OX
- GOOD HX AND PE
- PEEK FLOW TESTING +/-

10

DISEASE PATTERNS

- 1 FAST ONSET = BRONCHOSPASM, LESS COMMON, ALLERGY, COLD OR EXERCISE
USUALLY RESPONDS TO TREATMENT
- 2 SLOW ONSET = INFLAMMATORY, MORE COMMON, VIRAL INFECTIONS, URI
SLOWER RESPONSE TO TREATMENT
- SAMTER'S TRIAD = ASA/NSAID INTOLERANCE + NASAL POLYPS + ASTHMA
ASA/NSAID MAYBE DANGEROUS FOR THESE FOLKS

11

FIRST LINE TREATMENT

- OXYGEN >> 90%
- INHALED SHORT ACTING B2-AGONISTS = Q20 MINUTES X 3 TX
- REPEAT ABOVE OR CONTINUOUS TX 10MG/HOUR
- INHALED IPRATROPIUM BROMIDE 0.5 MG NEBULIZED 8 PUFFS MDI
- SYSTEMIC GLUCOCORTICOCIDS = REDUCES HOSPITALIZATION, RELAPSE PROTECTION, PO IS OK

12

ADJUNCTIVE THERAPY

- MAGNESIUM SULFATE 2 GRAMS OVER 20 MINUTES
- SYSTEMIC B2 AGONIST = TERBUTALINE 0.25 MG SQ OR EPINEPHRINE 0.3 MG IM
- HELIOX 80/20 RATIO (HELIUM:OXYGEN)
- NON-INVASIVE VENTILATION
- KETAMINE
- INHALED ANESTHETICS
- ECMO

13

INHALED CORTICOSTEROIDS AN UNDERUSED OPTION FOR ASTHMA

ACEP NOW 1/5/25 (REVIEW ARTICLE)

National Asthma Education and Prevention Program Guidelines 2020 update
ICS (inhaled corticosteroids) are recommended for every treatment pathway

Inhaled Reliever Therapies for Asthma: A Systemic Review and Metaanalysis. JAMA 2024
N= 50,496

ICS USE:

- increased lung function
- fewer exacerbations
- decrease ED visits
- decreased admissions

14

RESPIRATORY FAILURE INTUBATION

- AVOID AT ALL COST BUT DO NOT DELAY
- COMPLICATIONS = LARYNGOSPASM, HYPOTENSION, BAROTRAUMA, HYPER-INFLATION, PERI-INTUBATION ARREST
- INCREASED MORTALITY 20% AND LONGER ICU STAY
- PERMISSIVE HYPERCAPNIA
- PEEP CONTROVERSY

15


INDICATIONS FOR INTUBATION AND VENTILATION

- CARDIAC OR RESPIRATORY ARREST
- PROGRESSIVE SOMNOLENCE AND AGITATION
- INABILITY TO SPEAK
- INCREASING PCO₂ > 55-70 MM HG
- RESPIRATORY ACIDOSIS
- SEVERE OR WORSENING HYPOXIA
- WORSENING RESPIRATORY FATIGUE

INCREASE PULSE RATE, DIAPHORESIS, RETRACTIONS, ACCESSORY MUSCLE USE

16

CARDIAC ARREST AND DEATH



Displacement
Obstruction
Pneumothorax
Equipment
Stacked breaths

17

BREATH STACKING

- OBSTRUCTION TO EXHALATION
- PROLONGED EXHALATION TIME
- LEADS TO HYPER-INFLATION AND INCREASED RESPIRATORY DISTRESS
- A VERY VICIOUS CYCLE

• FIX = SLOW THE RESPIRATORY RATE TO ALLOW TIME TO EXHALE

18



19
