

STATUS ASTHMATICUS

MODULE: CRITICAL INCIDENTS

TARGET: ANAESTHETIC & ACCS TRAINEES

BACKGROUND:

Management of bronchospasm is a core skill common to the acute medical specialties. Management should include consideration of differential diagnoses and treatment should follow established British Thoracic Society guidelines. If airway protection is required then an anaesthetic technique which avoids further exacerbation of bronchospasm should be adopted, and appropriate ventilatory settings applied.

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IG_BS_07	Demonstrates effective pre-oxygenation, including correct use of the mask, head position and clear					
AM_BS_04	explanation to the patient					
IG_BS_08	In respect of intravenous induction:					
	 Makes necessary explanations to the patient 					
	 Demonstrates satisfactory practice in preparing drugs for the induction of anaesthesia 					
	 Demonstrates proper technique in injecting drugs at induction of anaesthesia 					
	Manages the cardiovascular and respiratory changes associated with induction of general					
	anaesthesia					
IG_BS_10	In respect of airway management:					
AM_BS_05	 Demonstrates optimal patient position for airway management 					
	 Manages airway with mask and oral/nasopharyngeal airways 					
	 Demonstrates hand ventilation with bag and mask 					
	 Able to insert and confirm placement of a Laryngeal Mask Airway 					
	 Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral 					
	intubation techniques and					
	 confirms correct tracheal tube placement 					
	Demonstrates proper use of bougies					
	Demonstrates correct securing and protection of LMAs/tracheal tubes during movement,					
	positioning and transfer					
CI_BK_19	Bronchospasm					
CI_BS_01	Demonstrates good non-technical skills such as: [effective communication, team-working,					
	leadership, decision-making and maintenance of high situation awareness]					
CI_BS_02	Demonstrates the ability to recognise early a deteriorating situation by careful monitoring					
CI_BS_03	Demonstrates the ability to respond appropriately to each incident listed above					
CI_BS_04	Shows how to initiate management of each incident listed above					
CI_BS_05	Demonstrates ability to recognise when a crisis is occurring					
CI_BS_06	Demonstrates how to obtain the attention of others and obtain appropriate help when a crisis is					
	occurring					
3.1	Manages the care of the critically ill patient with specific acute medical conditions					





INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- · Differential diagnosis of the patient with bronchospasm
- Assessing severity of asthma attack
- · Management of status asthmaticus, including difficulties around invasive ventilation

SCENE INFORMATION:

Location: Recovery

EQUIPMENT & CONSUMABLES

PERSONS REQUIRED

Manikin – on theatre trolley.
Oxygen mask
Nebuliser mask
Checked , disconnected anaesthetic machine
Stocked Airway trolley

Anaesthetic Junior Trainee Recovery Nurse Anaesthetic Senior Trainee

- Laryngoscopes (2 x Macintosh)
- ET Tubes (Various Sizes)
- OP, NP and Advanced Supraglottic airways (iGels, LMAs)

Water's Circuit

'VOICE OF MANIKIN' BRIEFING:

You have mild to moderate asthma usually, but are currently suffering a life-threatening asthma attackin recovery following a day case orthopaedic procedure.

You are reathless, wheezy, coughing and unable to speak in more than one or two word sentences. You deteriorates during the scenario to silent chest

Asthma usually well controlled with Clenil and Salbutamol inhalers. Animal hair and hay fever are triggers. You do not know usual Peak Flow measurements.

Last had oral steroids (Predinisolone) 2 years ago with a chest infection.

Never had nebulisers. No asthma related hospital admissions. Never been ventilated.

No other medications. No known drug allergies.

'RECOVERY NURSE' BRIEFING:

You have been looking after this patient for about 15mins. The LMA came out 10mins ago. Over the last 5 mins the patient has been complaining of chest tightness, and coughing a lot. They sound wheezy.

You know they are asthmatic from the anaesthetic chart, but have not got any asthma medications prescribed. You have called the doctor to review the patient.

You are able to administer nebulisers. If asked you have no anaesthetic skills beyond basic airway manoeuvres, holding a face mask or bag ventilation (2 person technique). You cannot connect up the anaesthetic machine.





CONDUCT OF SCENARIO

INITIAL SETTINGS A: Own. B: SaO2 96% on nasal O2. RR 28/min. Wheeze. C: 165/85, HR 95 D: Awake. Eyes open. Pupils equal. E: Sitting upright. Few minutes for history taking, but progressive worsening of breathlessness and wheeze. **EXPECTED ACTIONS** ABCDE assessment. ·Monitoring. Consider differential diagnoses **WORSENING ASTHMA** ·High flow O2 and/or A: Own. administration of salbutamol B: SaO2 92% unless O2 increased or neb given. 2.5-5mg neb +/- ipratropium RR 36/min, Wheeze. 500mcg neb C: BP 165/85. HR 125 Ensure IV access. Take blood for D: Awake. Eyes open. Pupils equal. labs, cultures, glucose. Increasing difficulty talking. Weak cough. Commence treatment with steroids, give iv magnesium 2g. Consider CXR. 'ABG: pH 7.36, pCO2 5, pO2 12, BE -2, lac 1.6 NO RESPONSE TO TREATMENT • Call for help • Consider other therapy e.g. B: SaO2 94% despite O2 or neb. RR 48/min. aminophylline Silent chest. Increased resistance. Decreased compliance. C: BP 120/80. HR 150 D: Eyes half open. Unable to talk REDUCED DIFFICULTY **EXPECTED ACTIONS** · Call for help/help arrives Help arrives early Rpt ABG pH 7.30, pCO2 7, pO2 9, BE -3, lac 2.6 Back to back neb therapy start to ease Decision to intubate and ventilate bronchospasm provided appropriate therapy given. **EXPECTED DIFFICULTY INCREASED DIFFICULTY** Consider ketamine induction Post induction: Mechanical Avoidance of histaminergic drugs ventilation difficult. High resistance, (e.g. atracurium, morphine) poor compliance. Appropriate ventilation settings Volatile (Iso/Sevo) maintenance necessary to prevent desaturation Mechanical ventilation easy and hypercapnoea. **INCREASED DIFFICULTY** RESOLUTION Bronchospasm managed, or at faculty If participants performing well, discretion. Further plan e.g ward observation or consider further complication such as ICU admission as appropriate. tension pneumothorax.





DEBRIEFING

POINTS FOR FURTHER DISCUSSION:

- · Differential diagnosis of the patient with bronchospasm
- Assessing severity of asthma attack
- · Management of status asthmaticus, including difficulties around invasive ventilation

DEBRIEFING RESOURCES

British Thoracic Society/SIGN Asthma Guideline 2011

Quick Reference Guide page 13-14 has the protocol for assessment and management of asthma exacerbations. Chapter 6 of the full guideline: Management of acute asthma has evidence based descriptions of each step in the management of an asthma exacerbation.

http://www.brit-thoracic.org.uk/guidelines/asthma-guidelines.aspx

Clinical Review: Mechanical Ventilation in Severe Asthma. Stather D, Stewart E. Critical Care 2005, 9:581-587

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http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1414026/





INFORMATION FOR PARTICIPANTS

KEY POINTS:

- · Differential diagnosis of the patient with bronchospasm
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PARTICIPANT REFLECTION:

TAKHER ANT KELECHOM.
What have you learnt from this experience? (Please try to list 3 things)
How will your practice now change?
What other actions will you now take to meet any identified learning needs?



Observer



PARTICIPANT FEEDBACK			
Date of training session:			
Profession and grade:			
What role(s) did you play in the scenario? (Please tick)			
Primary/Initial Participant			
Secondary Participant (e.g. 'Call for Help' responder)			
Other health care professional (e.g. nurse/ODP)			
Other role (please specify):			

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
I found this scenario useful					
I understand more about the scenario subject					
I have more confidence to deal with this scenario					
The material covered was relevant to me					

Please write down one thing you have learned today, and that you will use in your clinical practice.

How could this scenario be improved for future participants? (This is especially important if you have ticked anything in the disagree/strongly disagree box)





FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM

What went particularly well during this scenario?
What did not go well, or as well as planned?
Why didn't it go well?
How could the scenario be improved for future participants?

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