NHS
Health Education Thames Valley

TOTAL/HIGH SPINAL BLOCK

MODULE: CRITICAL INCIDENTS

TARGET: ALL ANAESTHETISTS

BACKGROUND:

Total/High spinal block is an uncommon but significant complication of neuraxial anaesthesia. All anaesthetists must be able to manage the respiratory, cardiovascular and neurological effects of an inadvertently high spinal block.

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IG_BS_07	Demonstrates effective pre-oxygenation, including correct use of the mask, head position and clear 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: • Demonstrates optimal patient position for airway management • Manages airway with mask and oral/nasopharyngeal airways • Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation techniques and confirms correct tracheal tube placement • Demonstrates proper use of bougies • Correctly conducts RSI sequence Correctly demonstrates the technique of cricoid pressure (Participant 2)
RA_BS_04	Demonstrates how to undertake a comprehensive and structured pre-operative assessment of patients requiring a subarchnoid blockade, perform the block and manage side effects/complications correctly
CI_BK_26	High spinal block
CI_IS_01	Demonstrates leadership in resuscitation room/simulation when practicing response protocols with other healthcare professionals
CI_IS_02	Demonstrates appropriate use of team resources when practicing response protocols with other healthcare professionals
OB_IS_05	Demonstrates the ability to manage complications of regional block including failure to achieve an adequate block

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INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- Recognition of the symptoms and signs of a high or total spinal block.
- Verbal reassurance and sufficient anaesthesia are required as there is a high likelihood of awareness.

SCENE INFORMATION:

- Location: Recovery

This patient has undergone an emergency Rt hemicolectomy for acute obstructions secondary to an inflammatory mass thought to be related to her Crohn's disease. She has been in recovery for about an hour. You have been called to see her as she has started to complain of increasing breathlessness in recovery. The recovery nurse has called you to see and assess her.

You are the on-call anaesthetic trainee, and have just started your shift.

EQUIPMENT & CONSUMABLES	PERSONS REQUIRED
Manikin – On trolley/bed. Attahced to recovery monitoring Checked anaesthetic machine, unplugged. Stocked Airway trolley - Laryngoscopes (2 x Macintosh) - ET Tubes (Various Sizes) - OP, NP and Advanced Supraglottic airways (iGels, LMAs) IV fluids	Anaesthetic/ACCS junior trainee Recovery Nurse Anaesthetic Senior Trainee

'VOICE OF MANIKIN' BRIEFING:

You are a 35 yr old with Crohn's disease. You came into hospital 2 days ago after a 4 day history of worsening vomiting and swollen abdomen. The surgeons told you that you had a blockage, and that you needed an operation to remove part of your colon. You take azathioprine and prednisolone. You have a had had a minor skin reaction to penicillin in the past. You have never had a general anaesthetic before, but had an emergency Caesarean section under epidural top-up previously.

Since waking up you have been in severe pain. The nurse looking after you has given you some medicines in your drip. Your anaesthestist saw you a little while ago and put something down your epidural. Your pain has now improved but you are feeling like it is much more effort to breathe.

After 1-2 mins, the breathlessness gets worse, and you start to feel dizzy. This develops into slight slurring of speech and drowsiness. You lose consciousness and stop speaking after 5 minutes.

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‘RECOVERY NURSE’ BRIEFING:

You have been looking after this 35 year old with Crohn’s disease. She has undergone an emergency right hemicolectomy after developing bowel obstruction. She has been in recovery for about an hour and has been in pain since coming around. She has been given IV paracetamol and has an epidural running at 5mi/hr. Her anaesthetist saw her around 15 minutes ago and put local anaesthetic into her epidural. You aren’t sure how much was put down, but it was documented by the anaesthetist, who has now gone home.

Over the last few minutes, the patient has started to complain of increasing difficulty breathing. Their SaO2 has been stable but you have increased the inspired oxygen. You have called for a review by the on-call anaesthetist.

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CONDUCT OF SCENARIO

INITIAL SETTINGS

A: Own. Facemask O2
B: RR 16. SaO2 96%
C: HR 105, BP 110/65, 16G IV Access
D: GCS 15/15. Eyes half closed. Pupils equal. Anxious and in pain.
E: Epidural catheter in situ, secured over shoulder.

DETERIORATION (3 MINS)

A: Own.
B: RR 24, SaO2 94% unless more O2 applied. Increased difficulty breathing.
C: BP 95/50, HR 70. If Metaraminol given, BP 105/60, HR 60
D: Panic → Drowsiness

EXPECTED ACTIONS

- Take appropriate history
- Examine patient
- Check level of block. 30 , head up.
- Treat haemidynamics with pressors e.g. Metaraminol.
- Call for help appropriately

RISING EPIDURAL BLOCK

A: Partially obstructed
B: RR falls to 0. SaO2 falls to 85% over 2 mins.
C: BP 70/40, HR 50.
D: GCS 3-4 (Moans)

EXPECTED ACTIONS

- Approprioate verbal reassurance of patient.
- Rapid sequence Induction
- Appropriate management of haemodynamic changes

LOW DIFFICULTY

Easy airway, easy to ventilate
SaO2 falls slowly, no lower than 85%
Hypotension and Bradycardia respond to appropriate treatment.

NORMAL DIFFICULTY

Moderately difficult airway
SaO2 falls no lower than 75%
CVS poorly responsive to treatment

HIGH DIFFICULTY

Options:
1. Life-threatening hypotension and bradycardia
2. Difficult airway
3. PEA arrest

RESOLUTION

Scenario ends at faculty discretion once appropriate anaesthetic management has been demonstrated.

ANAESTHETIC RECORD SHEET

PATIENT DETAILS / ADDRESSOGRAPH
Hospital No.

SURNAME: (Block Letters) FORENAMES: Sophie Jones

Address: Ward/Hosp. 19/7/76

DOB: Sex: M / F

Royal Berkshire NHS
NHS Foundation Trust

Procedure(s) proposed:
Open RHS Hemicolectomy

CEPOD CLASS: ELECTIVE / SCHEDULED / URGENT / EMERGENCY

Anaesthetist's preoperative assessment by

Name:

Grade: ☐Cons ☐AS ☐SG ☐Trainee ____________

Date: **Time:**

Signature

Anaes / Surg history:

No previous Gas
Previous LSCS under epidural top-up

Medical history:

Crohn's Disease

V

NBM since
Solids: Fasted overnight
Clear Fluids:

Pregnancy :
Lactation:

O/E

Low BMI

Airway Assessment
Mouth Opening:
MP Score: 1 2 3 4
Jaw:
Neck: MP1. Good neck and jaw ROM

TEETH

8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8

X = missing L = loose B = bridge
C = caps / crowns D = damaged

ASA
BP:
HR:
Temp:
Weight:
Height:
BMI:
Smoke:
Alcohol:
Apfel Score

Relevant Medication:
Azathioprine
PRrednisolone

ALLERGIES

Penicillin - Rash

Investigations

☐ Haematology
FBC
Hb 9.8
Plt 154
Sickle:

☐ Biochemistry
U & E
NAD
Blood Sugar:

☐ Coag.
INR 1.0

☐ Gp. & Save

☐ X - Match

☐ ECG

☐ X - Ray
CT Abdo – RIF mass

Other:

CONSENT: ☐ GA ☐ Sedation ☐ Epidural ☐ Spinal ☐ Regional ☐ Suppository
☐ PCA ☐ EPCA ☐ Other

Notes / Discussion / Technique proposed:

☐ Anaesthetic Information leaflet received by patient

For attention of ward staff: (further investigations, fasting, continue/omit current medication, etc.)

All orders / information regarding medication & fluids must be entered on patient's drug prescription & administration record

DEBRIEFING

POINTS FOR FURTHER DISCUSSION:

- Recognition of the symptoms and signs of a high or total spinal block.
- Verbal reassurance and sufficient anaesthesia are required as there is a high likelihood of awareness.

DEBRIEFING RESOURCES

1) Complete Spinal Block following Spinal Anaesthesia. Anaesthesia Tutorial of the Week 180.(24th May 2010) Newman B
http://www.frca.co.uk/Documents/180%20Complete%20spinal%20block%20after%20spinal%20anaesthe sia.pdf

2) Case Report – Total Spinal Anaesthesia. Update in Anaesthesia (2002) 14 (14) Dijkema L, Haisma H.
http://www.nda.ox.ac.uk/wfsa/html/u14/u1414_01.htm

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INFORMATION FOR PARTICIPANTS

KEY POINTS:

- Recognition of the symptoms and signs of a high or total spinal block.
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RELEVANCE TO AREAS OF THE ANAESTHETIC CURRICULUM

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FURTHER RESOURCES

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PARTICIPANT REFLECTION:

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?

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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):	
Observer	

	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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