

Syllabus	
Topic	Local anaesthetic toxicity

You are the on-call anaesthetist and at 3am you are asked to see a woman for category 2 Caesarean Section who has a working epidural. You proceed to top up the epidural with 20ml 0.5% bupivacaine and start to top-up in the delivery room. The patient suddenly becomes unresponsive and you are unable to feel a pulse.

a)

Other than local anaesthetic systemic toxicity (LAST), list 2 possible causes for this patients collapse (2 marks)

1)

2)

b)

You realise that you have in fact given your top up intravenously. After an A to E assessment and basic management, what is your definitive drug treatment? Give drug, dose and route (4 marks)

Drug:

Dose:

Route:

c)

Local anaesthetic toxicity classically affects the cardiovascular system in 3 stages. Outline the 3 stages you would expect to see (3 marks)

Stage 1:

Stage 2:

Stage 3:

d)

Arrange the following routes of administration of local anaesthetics from least to most likely to cause systemic toxicity (2 marks)

Epidural, subcutaneous, caudal, intercostal

Least likely

Most likely

e)

List 4 ways in which you can minimise the chance of inadvertent local anaesthetic systemic toxicity whilst performing a fascia-iliaca block (4 marks)

- 1)
- 2)
- 3)
- 4)

f)

List 4 patient factors that pre-dispose to local anaesthetic systemic toxicity (4 marks)

- 1)
- 2)
- 3)
- 4)

g)

What plasma protein does bupivacaine bind? (1 mark)

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	Answer	Mark	Guidance
a)	<ul style="list-style-type: none"> Anaphylaxis High spinal 	2	Accept PE and amniotic fluid embolism
b)	<u>Drug</u> <ul style="list-style-type: none"> 20% lipid emulsion <u>Route</u> <ul style="list-style-type: none"> IV <u>Dose</u> <ul style="list-style-type: none"> Initial bolus 1.5ml/kg Followed by an infusion of 15ml/kg/hour 	1 1 1 1	
c)	<u>Stage 1</u> <ul style="list-style-type: none"> Hypertension and tachycardia <u>Stage 2</u> <ul style="list-style-type: none"> Hypotension and myocardial depression <u>Stage 3</u> <ul style="list-style-type: none"> Severe hypotension secondary to peripheral vasodilation and cardiac arrhythmias (bradycardias, asystole, VT, conduction blocks) 	1 1 1	
d)	<ul style="list-style-type: none"> Subcutaneous Epidural Caudal Intercostal 	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	
e)	<ul style="list-style-type: none"> Regular aspiration Ultrasound guidance Incremental injection Use of a 'tracer' such as ephedrine 	1 mark each (Max. 4 marks)	Marks for any sensible alternatives
f)	<ul style="list-style-type: none"> Low weight Elderly Children Pre-existing renal or hepatic disease Pregnancy 	1 mark each (Max. 4 marks)	
g)	<ul style="list-style-type: none"> α-1 glycoproteins 	1	

References

1) Christie LE, Picard J, Weinberg GL. Local anaesthetic systemic toxicity. BJA Education (2015) 15(3)136-142