LiDCOplus Cardiac Output Monitoring Study Day

Post-Course Workbook Answer Sheet

Activity No.	Answer
1	Infection: Pulse Power analysis will work with any pre-existing arterial line. Thus reducing the risks of associated with further invasive procedures. Sub-optimal waveforms: Pulse Power analysis is a non-morphology based analysis, and so is minimally effected by sub-optimal waveforms
2	Calibration Factor = $\frac{\text{CO Actual (lithium dilution)}}{\text{CO Estimated (pulseCO)}}$
3	Defib Synch; BP Out; Analogue Out; X7; X6; X10; Phillips module; HI01 (dependent upon primary monitor)
4	180 days (adjustable)
5	0.3mmol
6	Adjust the Beat Detector Threshold to ensure HR matches primary monitor Increase the Auto-Average up to 30 secs to ensure stability of data
7	Tap x-axis to reveal magnifying glass and zoom in or out
8	Tap the screen inside the parameter box to display absolute values for 10secs
9	<5%
10	Press the event flag icon to reveal sub-menu. Press the event response icon; press play; fill in details; press green tick. The event response will now be running until you press stop
11	To correct the assumption regarding aortic compliance to give accurate beat-to-beat data
12	**Infection:** Use of pre-existing arterial line and venous access (central or peripheral), reducing the risks of infection associated with invasive procedures **Safety:** Lithium dose very small with no pharmacological effects known. Only small amount of blood used to take the measurement **Accuracy:** Extensively validated. 1 lithium dilution as accurate as the average of 3 thermodilution measurements **Applicability:** Able to scale dose. Do not need central line
13	3mmol (20ml)
14	Press LiDCO; LiDCO; OK; Update Hb, Na, Lithium Dose; Press LiDCO
15	Sensor; Lithium; Injectate Kit; Normal Saline; optional 3-way tap and 20ml syringe

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16	The Park & Ride is a 4ml extension tube which means that when the 2ml lithium dose is injected into the Park & Ride it will remain there until it is flushed in with 20ml of NaCl. Ensuring that all lithium is delivered at the same time
17	3hours
18	-80 - -130mV Sensor may not be primed adequately; there may be air bubbles or blood clots present; cable may not be connected properly
19	3
20	3 mins
21	Every 24 hours or if the arterial line is re-sited
22	Stop the atracurium infusion; give a bolus of vecuronium; wait 30 mins; calibrate; re-start the atracurium infusion
23	**Unstable baseline:** Ensure cable is dry and attached; ensure there are no air bubbles, blood clots and the sensor is fully primed; check for presence of electrical noise (warming blankets, pumps etc); consider whether patient on muscle relaxants or lithium therapy **Red Sensor Voltage:** Ensure sensor is within date; ensure sensor has been adequately primed; check for air bubbles, blood clots; check cable is connected and not damaged **Inadequate Lead-in time:** Patient may have a high CO. Press inject; wait 5 secs; inject **Appearance time too long:** Check flow regulator battery. Patient may have low CO. Inject lithium; wait 5 secs; press inject **No dilution curve:** Check blood flow from arterial line; check lithium was injected; consider patient's left ventrical ejection fraction <15-20% **Abnormal curve:** Check blood flow from arterial line; check dead space between arterial line and sampling point is <1ml; consider use of muscle relaxants; consider left ventrical ejection fraction <15-20% **Positive drift:** Is the patient on muscle relaxants? **Peak concentration low:** Ensure lithium has been injected correctly; check blood flow from arterial line; increase dose of lithium in accordance with manufacturers guidelines **Peak concentration high:** Reduce dose of lithium in accordance with manufacturers guidelines **No Auto-Calibration option:** make a note of the CO measurement; exit to pulseCO and enter the CO manually by pressing LiDCO and then CO **please see User Manual for more information*

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