LiDCO

Normal Hemodynamic Parameters

Parameter	Equation	Normal Range
Normal Hemodynamic Parameters - Adult		
Arterial Blood Pressure (BP)	Systolic (SBP)	90 - 140 mmHg
	Diastolic (DBP)	60 - 90 mmHg
Mean Arterial Pressure (MAP)	SBP + (2 x DBP)/3	70 - 105 mmHg
Systolic Pressure Variation (SPV)	(SPmax-SPmin)▼	<5 mmHg unlikely to be preload responsive >5mmHg likely to be preload responsive
Pulse Pressure Variation (PPV)%	(PPmax-PPmin)/[(PPmax + PPmin)/2] x100▼	<10% unlikely to be preload responsive >13-15% likely to be preload responsive
Stroke Volume Variation (SVV)%	(SVmax-SVmin)/[(SVmax + SVmin)/2] x100▼	<10% unlikely to be preload responsive >13-15% likely to be preload responsive
	▼= averaged over 10 sec. of BP data updated every 4 beats	
Right Atrial Pressure (RAP)		2 - 6 mmHg
Right Ventricular Pressure (RVP)	Systolic (RVSP)	15 - 25 mmHg
	Diastolic (RVDP)	0 - 8 mmHg
Pulmonary Artery Pressure (PAP)	Systolic (PASP)	15 - 25 mmHg
	Diastolic (PADP)	8 - 15 mmHg
Mean Pulmonary Artery Pressure (MPAP)	[PASP + (2 x PADP)]/3	10 - 20 mmHg
Pulmonary Artery Wedge Pressure (PAWP)		6 - 12 mmHg
Left Atrial Pressure (LAP)		6 - 12 mmHg
Cardiac Output (CO)	HR x SV/1000	4.0 - 8.0 l/min
Cardiac Index (CI)	CO/BSA	2.5 - 4.0 l/min/m^2
Stroke Volume (SV)	CO/HR x 1000	60 - 100 ml/beat
Stroke Volume Index (SVI)	CI/HR x 1000	33 - 47 ml/m^2/beat
Systemic Vascular Resistance (SVR)	80 x (MAP - RAP)/CO	800 - 1200 dynes • sec/cm^5
Systemic Vascular Resistance Index (SVRI)	80 x MAP - RAP)/CI	1970 - 2390 dynes • sec/cm^5/m^2
Pulmonary Vascular Resistance (PVR)	80 x (MPAP - PAWP)/CO	<250 dynes • sec/cm^5
Pulmonary Vascular Resistance Index (PVRI)	80 x (MPAP - PAWP)/CI	255 - 285 dynes • sec/cm^5/m^2
Hemodynamic Parameters - Adult		
Left Ventricular Stroke Work (LVSW)	SV x (MAP - PAWP) x 0.0136	58 - 104 gm-m/beat
Left Ventricular Stroke Work Index (LVSWI)	SVI x (MAP - PAWP) x 0.0136	50 - 62 gm-m/m^2/beat
Right Ventricular Stroke Work (RVSW)	SV x (MPAP - RAP) x 0.0136	8 - 16 gm-m/beat
Right Ventricular Stroke Work Index (RVSWI)	SVI x (MPAP - RAP) x 0.0136	5 - 10 gm-m/m^2/beat
Coronary Artery Perfusion Pressure (CPP)	Diastolic BP - PAWP	60 - 80 mmHg
Right Ventricular End-Diastolic Volume (RVEDV)	SV/EF	100 - 160 ml
Right Ventricular End-Systolic Volume (RVESV)	EDV - SV	50 - 100 ml
Right Ventricular Ejection Fraction (RVEF)	SV/EDV	40 - 60%
Oxygenation Parameters - Adult		
Partial Pressure of Arterial Oxygen (PaO_2)		80 - 100 mmHg
Partial Pressure of Arterial CO_2 ($PaCO_2$)		35 - 45 mmHg
Bicarbonate (HCO_3)		22 - 28 mEg/l
pH		7.38 - 7.42
Arterial Oxygen Saturation (SaO_2)		95 - 100%
Mixed Venous Saturation (SvO_2)		60 - 80%
Arterial Oxygen Content (CaO_2)	(0.0138 x Hgb x SaO_2) + (0.0031 x PaO_2)	17 - 20 ml/dl
Venous Oxygen Content (CvO_2)	(0.0138 x Hgb x SvO_2) + (0.0031 x PvO_2)	12 - 15 ml/dl
A-V Oxygen Content Difference ($C(a\text{-}v)O_2$)	CaO_2 - CvO_2	4 - 6 ml/dl
Oxygen Delivery (DO_2)	CaO_2 x CO x 10	950 - 1150 ml/min
Oxygen Delivery Index (DO_2I)	CaO_2 x CI x 10	500 - 600 ml/min/m^2
Oxygen Consumption (VO_2)	$(C(a\text{-}v)O_2$ x CO x 10	200 - 250 ml/min
Oxygen Consumption Index (VO_2I)	$(C(a\text{-}v)O_2$ x CI x 10	120 - 160 ml/min/m^2
Oxygen Extraction Ratio (O_2ER)	[(CaO_2 - CvO_2)/CaO_2] x 100	22 - 30%
Oxygen Extraction Index (O_2EI)	[SaO_2 - SvO_2)/SaO_2 x 100	20 - 25%

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