INSULIN DEXTROSE INFUSION for pregnancy



INSULIN IS A HIGH-RISK MEDICINE

USE WITH CAUTION AND ENSURE THE DIRECTIONS WITHIN THIS PROTOCOL ARE FOLLOWED CAREFULLY

Areas where Protocol/Guideline	Royal Hospital for Women		
applicable	· · · · · · · · · · · · · · · · · · ·		
Authorised Prescribers:	Supervision/advice from the on-call endocrinology/obstetric medicine team is mandatory when considering an insulin/dextrose infusion		
Important Safety Considerations	The half-life of IV insulin is only a few minutes, and a woman with type 1 Diabetes Mellitus (T1DM) needs to always have some insulin in her system - otherwise she is at risk of diabetic ketoacidosis.		
	Most women will be receiving long-acting insulin (Protaphane®, Lantus® or Levemir®) which reduces these risks. Long-acting insulin should be given concurrently as a dosage prescribed by the endocrinology/obstetric medicine team.		
	Care must be taken not to accidentally disconnect the insulin or dextrose infusions. Where possible, the insulin should be given through a dedicated cannula, and the capillary Blood Glucose Level (BGL) should be collected from the opposite hand.		
Indication for use	Women with type 1 diabetes mellitus during pregnancy, birth, and the immediate postpartum period who require tighter blood glucose level (BGL) control and is not eating, when their usual subcutaneous insulin regime is not appropriate.		
	An insulin/dextrose infusion is only used in exceptional circumstances for woman with Type 2 Diabetes Mellitus (T2DM) or gestational diabetes mellitus (GDM).		
	THIS PROTOCOL IS NOT FOR A WOMAN WITH DIABETIC KETOACIDOSIS.		
Proposed Place in Therapy	When usual subcutaneous insulin regime is not appropriate.		
Adjunctive Therapy	Long-acting insulin should be given concurrently as a dosage prescribed by the endocrinology/obstetric medicine team.		
Contra-indications	 Hypoglycaemia Allergy to Insulin (Actrapid®) Diabetic Ketoacidosis 		



Dosage	Insulin is administered intravenously at a variable rate. Glucose (Dextrose) is infused intravenously at a fixed rate. Confirm rates with Obstetrics Medicine / Endocrinology Team		
Insulin	Determine the initial insulin infusion rate using the table below. Commencement Rate for Insulin Infusion		
	Capillary BGL (mmol/L)	mL/hour (= units insulin/hour)	Comments
	<4.0	No insulin.	Refer to <u>Management of Hypoglycaemia</u> . Call a clinical review / rapid response. Check BGL every 15 minutes.
	4.0-5.0	Nil	
	5.1-7.0	1	
	7.1-9.0	2	
	9.1-11.0	3	
	11.1-13.0	4	
	≥ 13.1	Escalate	Call endocrinology/obstetric medicine team
Glucose / Dextrose	Dextrose 5% infusion rate 75 – 125 mL/hr		
Duration of therapy	Cease infusion as soon as possible after birth i.e., when the woman can eat and take her normal insulin.		
	Liaise with endocrinology/obstetric medicine team to create an individualised plan about when and how to cease infusion		



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	Actrapid 10 units in glucose 50% 50 mL [Hyperkalaemia], IV infusion, over 30 minutes
	Actrapid 50 units in sodium chloride 0.9% 50 mL [Labour Type 1 Diabetes], IV infusion
	Actrapid Penfill
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 IUST be administered by a category 1 or 3 accredited registered nurse RN) or registered midwife (RM) reparing infusions Determine the initial insulin infusion rate using Table Commencement rate for Insulin Infusion e.g. if the BGL is 5.2mmol/L, start the infusion at 1mL/hr (= 1 unit/hr). dministration
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 Requires one dedicated intravenous (IV) cannula to administer both infusions concurrently through an infusion pump. Connect to the IV cannula with a 3-way tap.
pad 50 units insulin in sodium chloride 0.9% made up to 50 mL total volume (1
nit of insulin/ mL) in a syringe driver
repare bag of 5% dextrose solution to be run concurrently at a fixed rate of 75- 25mL/hr as prescribed by the endocrinology/obstetric medicine team.
ccasionally 10% dextrose will be substituted if fluid restriction is required.
rovide 1:1 nursing/midwifery care
ursing staff are responsible for:
 checking capillary ketones fourth-hourly in labour using finger prick KetoStix®. Notify endocrinology/obstetric medicine team if ketones > 0.6 monitoring capillary BGL one hour after infusion commenced and then as frequency recommended below. Nursing staff MUST request a medical officer review when if > 2 consecutive BGL levels > 8.0 mmol/L or BGL ≥ 15.1 mmol/L. reviewing the insulin infusion rate every hour and adjusting accordingly. All infusion rate changes are to be checked by two RN/RMs. the woman is not responding to increasing the insulin infusion, consider errors elating to: the insulin infusion preparation IV tubing IV cannula blood glucose monitor ontact the endocrinology/obstetric medicine team if this occurs. ursing staff MUST document the administration of rate changes in MAR. If no djustments are required, document this and other details relevant for the fusion in the progress notes. See Quick Reference Guide: <u>Rate Change</u> ocumentation via MAR (Nurse Led Titration) Notify endocrinology/obstetric medicine team immediately if the insulin infusion needs to be turned off for any reason. e aware insulin requirements decrease after the birth of the placenta, and the oman is at increased risk of hypoglycaemia postpartum. Target BGL of 5-10



	Adjusting In	sulin Infusior	l
BGL (mmol/L)	Immediate action	Repeat capillary BGL	Next steps
< 4.0	 Stop insulin infusion Notify endocrinology/obstetric medicine team Treat hypoglycaemia 	every 15 mins until BGL > 4.0	Once BGL 4.0-6.0, leave insulin infusion off and repeat BGL in 1 hour. Once BGL > 6.0, recommence infusion at HALF the previous rate.
4.0 - 5.0	Halve insulin infusion rate	In 1 hour	•
5.1 - 7.9	If NO increase to insulin infusion rate in the last hour: Maintain infusion rate	In 1 hour	
	If recent increase to insulin infusion rate in the last hour: Reduce insulin rate by 1 mL/hr	In 1 hour	
8.0 – 15.0	Increase insulin rate by 1 mL/hr every hour until < 8.0 mmol/L	In 1 hour	Check capillary ketones and notify endocrinology/obstetric medicine team if > 2 consecutive BGL levels > 8.0 mmol/L
≥ 15.1	 Give 4 mL bolus of insulin stat. Increase insulin infusion rate by 1 mL/ hr Notify endocrinology/obstetric medicine team 	In 1 hour	Check for capillary ketones



Management of	Appendix 2: Treatment of hypo	oglycaemia CSII/IV Insulin				
Hypoglycaemia	BGL less than 4mmol/L					
			IV Insulin Infusion			
	Conscious and able to	Altered / Decrease in	+			
	swallow	LOC	Call Clinical Review			
	On CSII Pump	*	Yellow Zone 2222			
		Call Rapid Response (Code Blue) Red Zone	No decrease in LOC			
	Administer 15g glucose	2222	*			
	gel orally		Suspend Insulin Infusion			
		Suspend insulin	and check BGL every 10-15 mins until BGL			
	Call Clinical Review	infusion/CSII Administer 25-50mL of	>5mmol/L			
	Yellow Zone 2222	Glucose 50% IV or as ordered by MO	*			
			Administer 25 to 50mL of			
	Enter BGL to pump	Repeat BGL in 10 to	Glucose 50% IV or as Ordered by MO			
	Do not enter Glucose gel into pump	15min If BGL≥4mmol/L				
		JE JE	BGL >5mmol/L resume the			
	Repeat BGL in 10-15 min	Yes Yes	intravenous insulin infusion at half the rate it was when			
	Is BGL ≥4mmol/L?	On Pump On IV Insulin	suspended and do not			
	* *	Infusion	change rate at least 1 hour after infusion			
	Yes No		recommenced			
	Review CSII rate		*			
	Contact Endocrine Team and		MO to review prescribed			
	check patient ability to self- manage CSII prior to start		Insulin infusion rate			
	Give 2 biscuits or 1 slice of bread, milk or					
	Meal/Snack if available					
	 Diabetes - Managemen 	t of Pre-destational Dial	betes in Pregnancy Policy			
Basis of Protocol/Guideline:	 <u>Diabetes - Management of Pre-gestational Diabetes in Pregnancy Policy</u> SESLHDGL/116 					
	 Diabetes - Gestational Diabetes Mellitus (GDM) Screening and Management 					
	Policy SESLHDGL/117					
	Australian Commission on Safety and Quality in Health Care User guide to the					
			cilities. Sydney: ACSQHC; 2017			
	Guidelines for Treating	<u>Hypoglycaemia</u>				
Groups consulted						
in development of	Royal Hospital for Women Medication Safety Committee					
•	Royal Hospital for Women Maternity Clinical Business Rule Committee					
this guideline		-				

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GOVERNANCE		
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