Burton Hospitals NHS
NHS Foundation Trust

Title: Hyperglycaemia in the Premature Infant Guidelines for Usage of Insulin in Infants on Neonatal Unit		**Policy No: WC/PN/73N Version No: 4**
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Department of Paediatrics Department of Microbiology	All Paediatric Medical Staff ALL Paediatric Nursing Staff	AE Department Pharmacy
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	All Paediatric Medical Staff All Paediatric Nursing Staff	Division of Women & Children's Guideline Intranet Server
Approved by: **Clinical Director for Women and Children's Services**	…… **Clinical Director** **Date:**	

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Hyperglycaemia in the Premature Infant
Guidelines for Usage of Insulin in Infants on Neonatal Unit

1.0 Definition

A definition of neonatal hyperglycaemia is Glucose greater than 7mmol in blood or 8mmol in plasma.

Incidence: -May occur in up to 25% of low birth weight babies

Aetiology: Prematurity, Perinatal asphyxia, Stress, RDS, Total parenteral infusion (Glucose, Lipids), Infection, Surgical procedures, Drugs, Transient or permanent diabetes mellitus

Clinical implications of hyperglycaemia: Osmotic diuresis, Dehydration, Weight loss, metabolic disturbances.

2.0 Indications for Treatment

1. Any blood glucose level ≥ 20mmol/l
2. Persistent blood glucose ≥ 15mmol/l
3. Persistent blood glucose ≥12mmol/l with glycosuria on more than one occasion. (Persistent = 2 consecutive values at least 2 hours apart)

3.0 Management (See Appendix 1 - Flow chart)

4.0 How to make Insulin Infusion

Take 5 units/kg of soluble insulin and add to 50mls of sodium chloride 0.9%
Therefore 1mls = 0.1units/kg
Therefore infusion of 0.1mls/hr = 0.01units/kg/hr

(Eg: For 2 kg infant add 2 x 5units to 50mls of sodium chloride 0.9% to give 10units in 50mls or 0.1unts /kg /ml)

Dosage: 0.01 – 0.05units /kg/hr intravenously. Always commence at low dosage as neonates may be very sensitive - titrate according to response

Use the following scale as guideline

Blood glucose (mmol/l)	Dose Units/kg/hr	Rate ml/hr
>22	0.05	0.5
19-22	0.04	0.4
16-18	0.03	0.3
13-15	0.02	0.2
10-12	0.01	0.1
<10	Stop	Stop

If sugars still not controlled then you can use double strength.
For double strength: Add 10units/kg to 50mls of sodium chloride 0.9% to make 0.1ml/hr= 0.02unts/kg/hr. Please amend sliding scale on prescription accordingly.

5.0 Monitoring

1. Check blood glucose after 1 hour with every insulin dose change and then assess blood glucose 2-3 hourly while on insulin.

2. Monitor potassium levels every 12-24 hours.

6.0 Monitoring Compliance

An audit will be undertaken at least every three years to monitor the level of compliance with these standards. The audit will be identified as part of the Department of Paediatric Annual Audit Forward Plan, and registered in accordance with the Trust Clinical Audit Policy.

The audit criteria will include:

- Were strict criteria of starting insulin followed?
- Were possible causes of hyperglycemia looked for?
- Was there an attempt made to change or stop fluids containing high dextrose concentration wherever possible?
- Were BM motiored regularly after starting insulin therapy and insulin dose adjusted according to the sliding scale?
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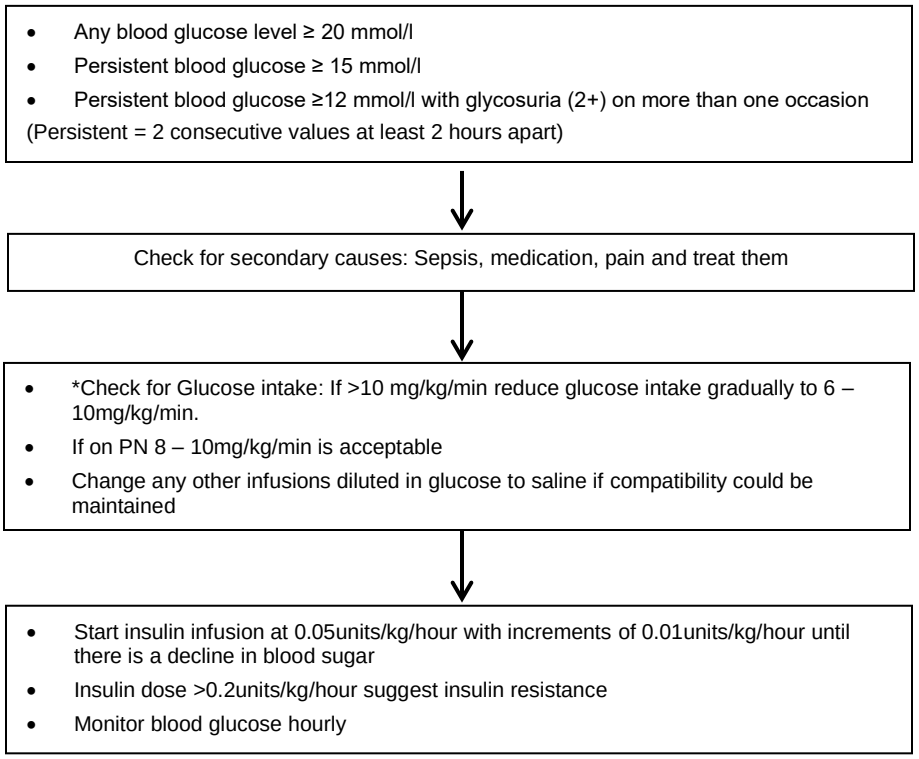
Monitoring of actions arising from the audit will be undertaken in accordance with section 10.4 of the Trust Clinical Audit Policy, which requires completion of an audit trail form within three months following presentation to the Departmental multidisciplinary audit meeting.

The audit action may include referral as appropriate to other groups particularly where deficiencies have been identified. Any actions identified as a result of referral to another group will be monitored by that group.

It is the responsibility of the departmental clinical audit lead to review progress of actions on the audit trail form. The timescale for review of the action plan will be stipulated as part of the action plan.

Appendix 1

Management of Hyperglycaemia in premature infants: Flow chart



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7.0 References

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