

Hypoglycaemia Screening in Neonates

(A Quality Improvement Project)

1.Dr M Ewadh, Junior Clinical Fellow in Paediatrics 2.Dr I Sadasivam, ST8 in Paediatrics 3.Dr C S Zipitis, Consultant Paediatrician and Neonatal lead 4. Dr A Ghattamaneni, Consultant Paediatrician

Objectives

To enable the process of performing hypoglycaemia screen easier and quicker in qualifying babies , utilising visual aids in the treatment room and the creation of a grouped order list in the local Information Technology (IT) system.

Methods

- Departmental review of babies admitted to our Neonatal Unit for persistently low blood sugars highlighted the difficulties of finding relevant investigations leading to incomplete investigations or potential delay in commencing hypoglycemia treatment. This was more common during out of hours when staffing levels are low and there is limited senior presence.
- Investigating persistent hypoglycaemia in a neonate involved locating and consulting the local guidelines on trust intranet, identifying individual tests on IT system and collecting necessary sample bottles with appropriate labels before administering emergency treatment for hypoglycaemia. This is a time-consuming process for staff who are not necessarily familiar with the local guidelines and IT system, where individual investigations exist but are not grouped together.). The idea of pre-made investigation packs was not supported by the team because of the risk of sample bottles being removed, lost or not kept up to date.
- Neonatal team liaised with the local digital transformation board who agreed to create an order list to overcome this challenge. All the necessary investigations would be pooled together in a set, under the title “Hypoglycaemia Screen Neonates”. When the investigator types “hypo” in the lab orders, the list will show up together with information on the various samples needed. The order set also assists investigators by providing prompts/warnings for iced samples, length of time from sampling to lab and advice on tests that need completing as point of care testing at the same time. The order set has also been printed and laminated to serve as visual aids on procedure rooms of both Paediatric and neonatal wards.

Results

The hypoglycemia screen order set is now live on the IT system along with the printed visual aid readily visible on procedure rooms. We have increased awareness of this ready-made set by sharing with medical and nursing colleagues during handover meetings. The order set has also made the investigation process less time consuming and more effective in terms of completion and patient safety. Images as below(1)

FLOWTEST, Katie (Mrs)

Born 10-Apr-1975 (48y)

Gender Female

NHS No: Unknown

Address: 65 DARLINGTON STREET, WIGAN, LANCASHIRE, WLN1 3EU Phone and Email 01942 264506

MRV 00015445

Location - Assign Bed - SDEC

Allergy Status Unknown

Hypoglycaemia Screen Neonates (LAB) [0 orders of 14 are selected]

Date to be collected: 04 Sep 2023

Priority: ☐ Contact / Blood Number:

Relevant Results

Chosen of Infection? (high risk)

No ☐ Yes ☐

Clinical Indications

Biochemistry

☐ Glucose (Random)

☐ Urea & Electrolytes

☐ Urine Organic Acids

☐ Insulin/C-Peptide

☐ Liver Function Test

☐ Urine Reducing Substances

☐ Cortisol (Serum)

☐ Thyroid (NOT on T4)

☐ Free Fatty Acids/Beta hydroxybutyrate

☐ Growth Hormone (Mass Units)

☐ Amino Acid Screen (plasma)

☐ Organic Acids (urine)

☐ Ammonia (plasma)

☐ Carnitine/Acyl Carnitine

Haematology

Immunology

Order Entry Worksheet - FLOWTEST, KATIE

FLOWTEST, Katie (Mrs)

Born 10-Apr-1...

Gender Female

NHS No: Unknown

Address: 65 DARLIN...

Phone and Email 019...

MRV 0001...

Location - Assign Be...

Allergy Stat...

Requested By: ☐ Me ☐ Other

Source:

Date:

Time:

Session Type: Standard

Reactor:

Manual Entry

Searching for ...

Order

Cost

Hypoglycaemia Screen Neonates (LAB)

Warning Message

Glucose - please check serum lactate and ketones as POCT

Insulin/C Peptide and Ammonia - PLEASE TRANSPORT IN ICE BAG to reach lab within 30 minutes

Add...

View...

Item Info

Add to Favorites

Message

Drug Info

Edit...

Delete

Copy...

Add Specimen...

Indication...

Mark as Done

Help

Hypoglycaemia screening set

*One EDTA red blood sample for: Ammonia

*sometimes lab ask for another EDTA sample for Carnitine/ Acyl Carnitine (get a second EDTA sample if possible)

Three Orange Heparin samples for:

-Amino Acid (plasma)

-Carnitine/ Acyl Carnitine

-Free fatty acid/ Beta Hydroxybutyrate

Two FULL serum brown blood sample for:

-Insulin/ C-Peptide

-Cortisol (serum)

-Thyroid (NOT on T4)

-Urea & Electrolytes

-Growth Hormone(mass unit)

- Liver function test

One yellow blood sample for : Random Glucose

One urine sample: - Urine reducing substances

-Urine Amino acids

Make sure to check glucose, ketones and lactate as POCT

Total = 1 red + 3 orange + 2 brown+ 1 yellow + 1 urine Sample

Sample needs to reach lab within 30 minutes

Sample needs to be in ice

Conclusions

In a QI project to improve the quality of hypoglycaemia screening in neonates, we liaised with our IT department and created an order set in the local IT system to make the process quicker and enable more consistent investigations. Verbal feedback has been positive so far with the order set being user friendly, efficient and educational. The impact of this tool will be investigated by an audit in the coming months.

References

(1)BAPM: Identification and Management of Neonatal Hypoglycaemia in the full term Infant, April 2017