MAR. 2021, ISSUE 11

NHS
Doncaster and Bassetlaw Teaching Hospitals
NHS Foundation Trust

THE PEN

Paediatric Education Newsletter

THE ENDOCRINE ISSUE

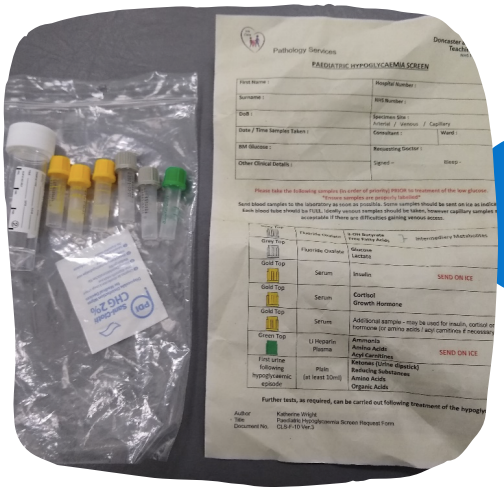
MUCH ADO ABOUT SUGAR

Hypoglycaemia in neonates and paediatrics

Mini Quiz - True or False

1. The cut-off for a hypoglycaemia screen varies depending on whether the sugar has been measured on a gas or using a BM machine.
2. The threshold for a hypoglycaemia screen in a neonate is higher than in a child.
3. You can treat neonatal hypoglycaemia using 200mg/kg of 40% dextrose gel in patients of >35 weeks gestation who are < 48hours old.

ANSWERS ON PAGE 4



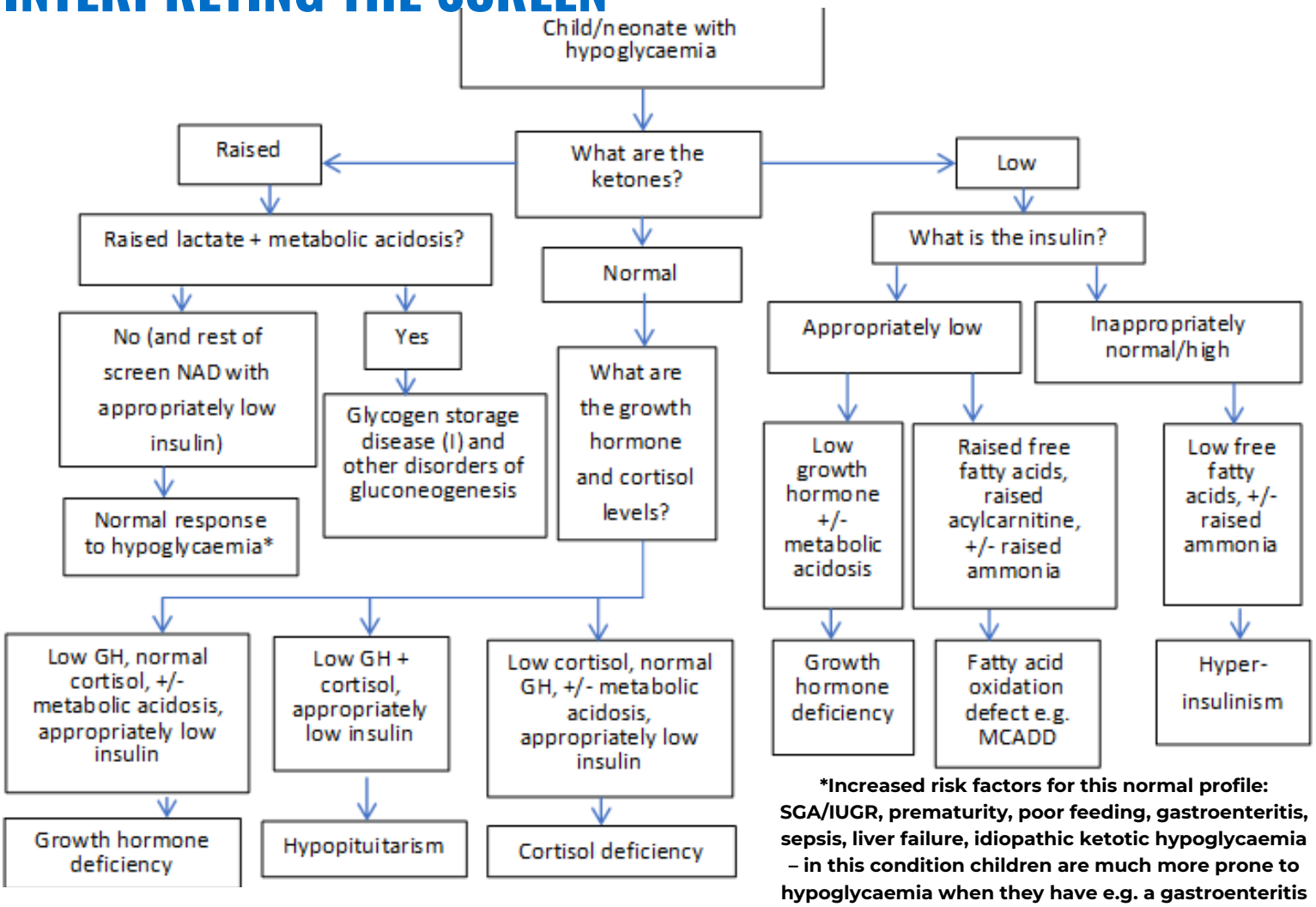
Hypo screen packs are available on CHAU and the neonatal unit – the form tells you which tubes you need and what each bottle is for...

Do we screen all new patients who present with hypoglycaemia?

YES! Why?

1. Wide differential including sepsis, endocrine and metabolic disorders.
2. Previously undiagnosed metabolic and endocrine diseases can be diagnosed at any age and "brought to light" by intercurrent illness.

INTERPRETING THE SCREEN



***Increased risk factors for this normal profile: SGA/IUGR, prematurity, poor feeding, gastroenteritis, sepsis, liver failure, idiopathic ketotic hypoglycaemia – in this condition children are much more prone to hypoglycaemia when they have e.g. a gastroenteritis or period of poor oral intake.**

CLINICAL QUESTIONS - THYROID

Neonates born to mothers with thyroid disorders

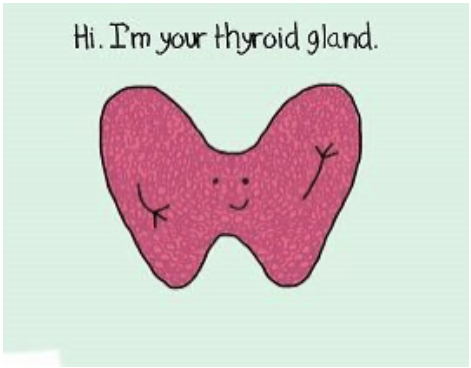
1. The midwives ask you what investigations should be done for a 1-day old female neonate whose mother has a history of hypothyroidism. This mum is taking thyroxine regularly. Her latest thyroid function tests were normal and she doesn't have thyroid receptor antibodies. What do you say?

2. The midwives have found a 1-day old male neonate whose mother has hyperthyroidism and is taking Carbimazole regularly. Her latest thyroid function tests were normal but she has +ve TSH receptor antibodies. What investigations do you suggest?

ANSWERS ON PAGE 4

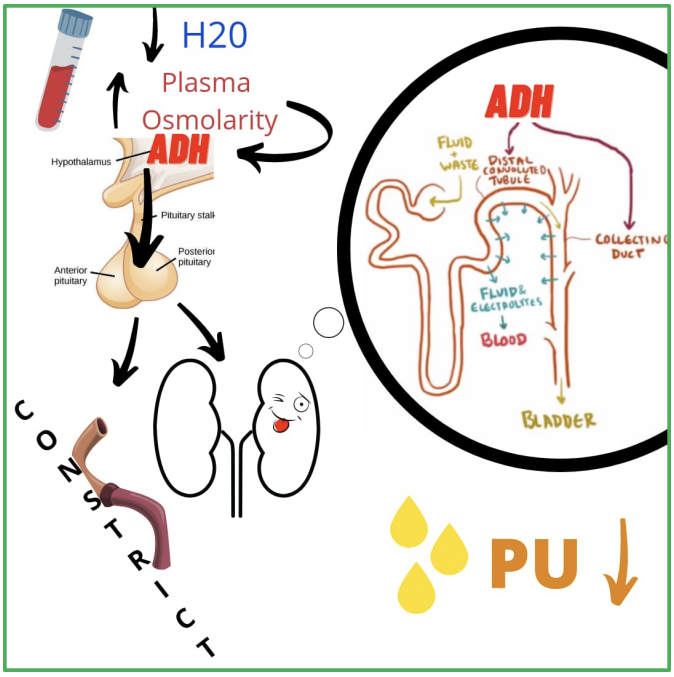
OPTIONS

A. TFT on day 1
B. Regular Guthrie test on day 5
C. Guthrie test + TFT on day 5
D. TFT on day 5
E. Guthrie test on day 5 + neonatal review and TFT on day 10-14

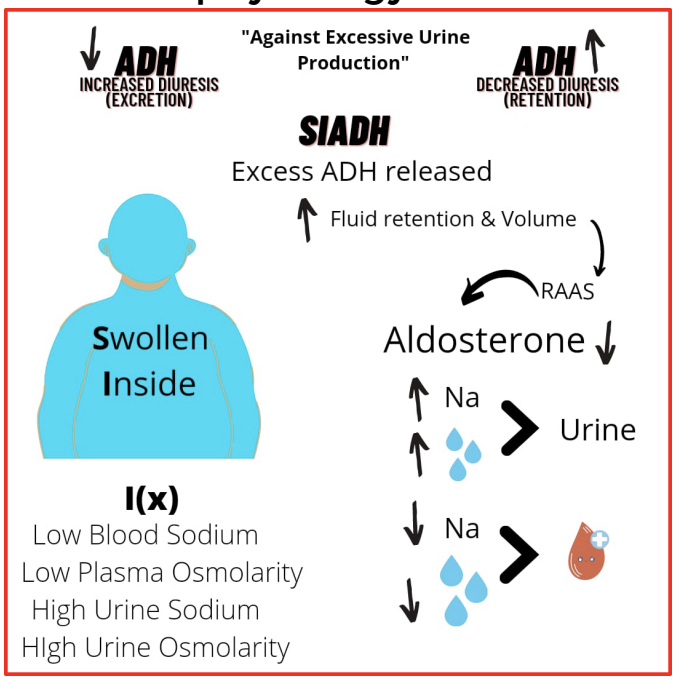


PHYSIOLOGY RECAP

Normal ADH



Pathophysiology in SIADH



CLINICAL QUESTION?

Testing adrenal function in neonates

Case: 37+2 weeker, born by elective LSCS. There is a paeds alert mentioning mum is on prednisolone and had anti-Ro antibodies. How will you manage this baby?

Neonates at risk of HPA (hypothalamic pituitary adrenal) axis suppression →

Babies born to mothers on ≥ 5mg Prednisolone or equivalent for ≥ 4weeks prior to delivery require testing of the HPA axis

↓

Prior to Discharge from Hospital undertake standard dose short synacthen test (145mcg/m2) at 24 hours after birth if mother on prednisolone or 48 hours after birth if on betamethasone or dexamethasone.

←

SST Protocol :
0 mins - cortisol (gold top serum), ACTH (lavender top EDTA x2, sent on ice)
Give synacthen
30 mins – cortisol
60 mins – cortisol

←

SST Result interpretation:
A normal response is indicated by peak cortisol >430 nmol/L and an increment of >200nmol/L from baseline.

↪

Treatment

If evidence of HPA axis suppression –

- **Commence the baby on hydrocortisone 12mg/m2/day divided three times a day.**
- **Refer to endocrine clinic (Dr Natarajan/endocrine nurse F/U)**

ADDITIONAL READING

Do Neonates Need a Short Synacthen Test to Investigate the Adrenal Axis?

Available from:
https://abstracts.eurospe.org/hrp/0082/hrp0082p2-d2-278.htm

This study was carried out at the Jessop Wing tertiary neonatal unit in Sheffield. Their protocol is slightly different in that in 'at risk' neonates they first carry out 3 cortisol levels 8 hours apart. Two levels of >100nmol/l or one level of >200nmol/L indicates adequate adrenal function and these infants do not then need a SST. They examined data for 39 infants born to mothers with a history of antenatal steroid use: 31 of these showed adequate cortisol levels on initial tests and therefore did not go on to require SST, 6 had SST performed and all showed a good response, 2 were already on hydrocortisone but had normal SST results 3 months later.

Clinical and laboratory characteristics and follow up of 62 cases of ketotic hypoglycemia: A retrospective study. International journal of pediatric endocrinology; 2019; vol. 2019 ; p. 3.

Available from:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6825346/
An interesting retrospective study suggesting in the typical setting of a healthy 0.5–6 year-old child with an uncomplicated episode of ketotic hypoglycaemia following poor food intake and normal growth and clinical examination, hormonal and metabolic testing can safely be deferred. However, frequent recurrences of hypoglycaemia and atypical features should prompt further investigation.

For more articles/journals/guidelines at

https://docs.google.com/document/d/e/2PACX-1vR6k4frDojcBh0aEmXP45m1Gi24vbTqwFqRCneeZg0mISbYN17iWTmVNumMgZnYaWswf9ZH6znjwH4K/pub

HYPOGLYCAEMIA QUIZ ANSWERS & EXPLANATION

1) True.
In neonates the cut-off is <1mmol/l on a blood gas or <1.5mmol/l on a BM on one occasion, or 1-1.9mmol/l on a blood gas or 1.5-2.4mmol/l on a BM on 2+ occasions.

2) False
See above. In paediatric patients the threshold is ≤3.3mmol/l

3) True
You can give 2 doses on the postnatal ward 30 minutes apart. The appendix in the hypoglycaemia guideline shows you how to work out how many mls to give depending on the patient's weight.

THYROID ANSWERS & EXPLANATION

1) B - Majority of thyroid diseases in pregnancy do not pose any increased risk of fetal and neonatal thyroid dysfunction. The Guthrie is sufficient for babies born to mums with hypothyroidism (as long as it is not secondary to anti-thyroid treatment for Grave's disease)

2)E - Babies at HIGH risk of thyrotoxicosis:
1) Raised maternal thyroid stimulating immunoglobulin titres.
2)Clinical thyrotoxicosis in third trimester.
3) Maternal anti thyroid treatment at time of delivery.
4) Family history of TSH receptor mutation.
5) Evidence of fetal thyrotoxicosis ie IUGR, tachycardia, goitre on USS. Ideally do TFT on cord bloods. If baby shows signs of thyrotoxicosis discuss with endocrinologists & check TFT ASAP. Otherwise check at 5 days. Give safety-net advice to parents on discharge re: poor weight gain, breathlessness, tachycardia, flushing, irritability, reduced feeding & neck swelling. Babies should be brought back for review, repeat TFTs on day 10-14 and manage as per the guidelines.