"Baseline" tests when NAI is suspected

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Children presenting with injuries need a thorough assessment, including consideration of the differential diagnosis. Medical "mimics" can coexist with NAI.

BRUISES

RCPCH 2020 states the following are indications for blood tests:
1. Any child with unusual bruising or bleeding out of proportion to the injury sustained, including infants with subdural and/or retinal haemorrhage

2. Any indications in the history or examination of a bleeding disorder

- Take a "bleeding history" as per **CP proforma** available on BSUH microguide > Paediatrics and Neonatology > Paediatrics > Safeguarding > CP medicals
  - Investigations are generally not indicated when the only bruising is clearly the result of a slap or blow with an instrument/imprint or there is a clear disclosure.
  - **If child is booked for a skeletal survey (SS) they will also need bone biochemistry screen**.

1st line coagulation screen (RCPCH / Dr Thomas):
FBC+ film, PT and APTT, TT, Fibrinogen, Factor VIIIc, vWF levels + group
1 pink top + 2 blue citrate + 1 small purple EDTA tubes (purple lid with white ring) for a blood group (vWF levels vary by blood group)

2nd line – if ongoing concerns about a coagulation disorder being cause of bruise or bleed despite normal first line tests, consider much rarer causes of bleeding **in discussion with a Great Ormond Street Hospital Haematologist**:
Tests may vary depending on age – be guided by advice from a specialist.

A negative history in itself does not exclude an important bleeding disorder. If concerns arise about a bleeding disorder (from the family or personal history / bloods) – discuss with Dr Wynne.

UNEXPLAINED OR SUSPICIOUS FRACTURE

Bone profile, Vitamin D and PTH (see **approach to orthopaedic injuries with possible safeguarding concerns** available on BSUH microguide > Paediatrics and Neonatology > Paediatrics > Safeguarding > Unexplained injuries > Fractures)

(BPABG: in unexplained fractures in infancy the level of vitamin D not relevant to causation of fractures unless there is radiological evidence of rickets using conventional X-ray techniques & biochemical evidence of rickets)

Multiple fractures – consider addition of copper and Vitamin A (for court purposes)

See fracture guideline for which fractures need a SS.

UPDATE RCPCH 2020: If a skeletal survey is planned - bone biochemistry screen should be performed when the 1st set of blood samples is taken, close to the time of the initial skeletal survey. This will enable easier interpretation and prevent the need for further needle insertion if a fracture is found on initial or the follow-up SS.

SUSPECTED ABUSIVE HEAD TRAUMA (See guideline available on BSUH microguide > Paediatrics and Neonatology > Paediatrics > Safeguarding > unexplained injuries)

CT head scan <1 year where there is evidence (signs or suspicion) of physical abuse, considered in children up to the age of two years.

- **please inform Named (Dr Frankie Howsam) or Designated Doctor (Dr Jamie Carter) in working hours (including babies transferred to tertiary centre)**
  - perform "1st line haematology screen & Bone health screen(if going for skeletal survey)"
  - unexplained intracranial haemorrhage factor XIII assay
  - blood cultures
  - urine toxicology and urine organic acids (-ve urine doesn't exclude 5% of non-excretors GAD)
  - if concerned about GAD (imaging appearances /macrocephaly) - discuss with metabolic team

SUSPECTED ABDOMINAL TRAUMA

- Perform amylase and LFTs (but PPV as a screening tool is undetermined).
- Urine – inspect for gross haematuria + on dipstick, repeat sample and discuss with surgeons (assuming no underlying renal / BP concerns)

  In children with suspected abusive abdominal injury, contrast CT scan is the investigation of choice. Ultrasound is not sensitive enough to adequately exclude significant injury.

References

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5. https://www.rcpch.ac.uk/news-events/news/weve-updated-our-companion-timing-blood-investigations-fractures