Audit of blood tests taken for paediatric patients undergoing hip surgery at University Hospital Crosshouse

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Background:

Developmental dysplasia of the hip (DDH) arises due to mal-development of the acetabulum. It can include any abnormality in the shape, size or orientation of the femoral head or acetabulum. Most commonly it arises when the acetabulum is too shallow, resulting in subluxation or dislocation of the femoral head. In the UK it is thought to affect approximately 1-2 per 1000 live births (1). Long term effects can include chronic pain and early onset arthritis (2).

Risk factors and screening:

All babies have a new born physical examination within 72 hours of birth. If the hip joints feel unstable they have an ultrasound within the first 2 weeks of life.

All babies with the following risk factors have an ultrasound by 6 weeks old:

- A family history of childhood hip problems
- The baby was breech in the last month of pregnancy
- The baby was born breech

Management:

Babies diagnosed soon after birth are put in a splint called a Pavlik harness for 6 to 12 weeks to help the hips to develop. If the Pavlik harness doesn't work, or if the child is diagnosed when they're older than 6 months, surgery is required. The types of surgery required is open reduction or an osteotomy with internal fixation. Some children will only need one procedure, however others will need both. All children will get an arthrogram before any surgery.

Surgical procedures:

Arthrogram: An x-ray of a joint with contrast medium. Local anaesthetic is used to numb the skin. There may be a mild increase in pain for 24-48 hours afterwards.

Open reduction: Incision made in the groin. Tissues preventing the femur sitting in the acetabulum are cleared and ligaments around the hip are repaired.

Osteotomy and internal fixation: Reshaping of either the pelvis or femur so the femoral head fits into the acetabulum (3).

Aims

The aim of this audit is to identify children who have attended University Hospital Crosshouse for hip surgery and to analyse the data regarding when they came to the hospital for pre-operative blood tests in relation to when they had their surgery. This is in order to see if practice could be changed to reduce stress for patients and their families.

Methods

A retrospective audit was conducted of all children who attended University Hospital Corsshouse for hip surgery from 2016 to 2019. Using Clinical Portal, data were gathered on:

- the date of their surgery,
- the date a 'group and save' was taken prior to surgery,
- their haemoglobin prior to the surgery (if within 4 months),
- post-operative haemoglobin (Hb) measurements

Results

There were 17 admissions for hip surgery in the period 2016 to 2019. This was a total of 12 patients, some of whom attended for two separate operations during this time period. The mean pre-operative Hb was 118 g/L.

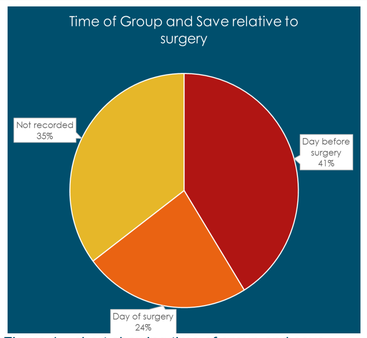

Figure 1—chart showing time of group and save relative to surgery

Results continued...

Only one patient had Hb measured post-operatively, after a drop in Hb of 21 g/L. No patients required a cross-match or blood transfusion. 17 procedures were carried out in total. Prior to these 17 procedures, a group and save was taken 11 times (65%) (figure 1). Of these eleven, nine (82%) had either a group and save or Hb measured the day before their operation. Of the four patients who had two operations and had their Hb measured each time, the mean drop in Hb from the first operation to the second operation was 11 g/L (figure 2).

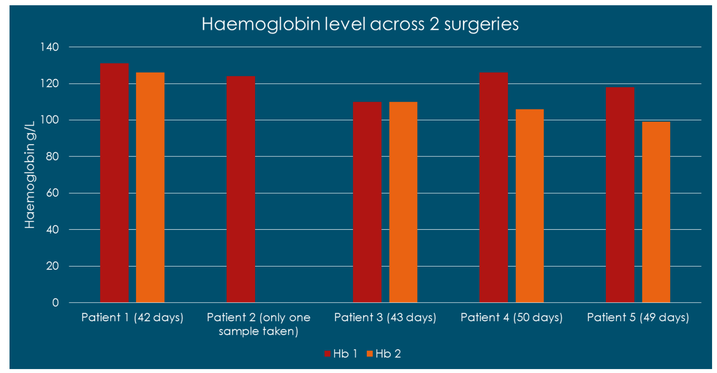

Figure 2—chart showing change in haemoglobin across two surgeries

Discussion

Most patients come to hospital the day before their operation for a blood test. In a paediatric population this causes disruption to the family and stress to the child. Instead, a first group and save and haemoglobin could be taken when the patient comes for arthrogram and a second group and save could be taken on the day of surgery after the induction of anaesthesia. This would reduce the number of trips to the hospital, the stress to the child and will free up beds in the hospital.

References:

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