teeth using a combination of serial microCT scans and SEM have enabled us to reconstruct the chronology and extent of intrauterine and infant growth insults in DS infants, expressed in growth and differentiation of the developing teeth. Our results for the deciduous teeth show that in DS, there is accelerated dental development in the first trimester followed by progressive growth retardation associated with impaired differentiation of the dental tissues. These changes appear to primarily affect cells derived from ectoderm affecting cell division and differentiation resulting in a smaller modified tooth germ and impaired enamel matrix formation and bio-mineralization. The resulting enamel is thin and hypomineralized and this may contribute to the severe abrasion seen in the teeth of DS children despite the associated lack of muscle tone.

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USE OF EMERGENCY O NEGATIVE BLOOD TRANSFUSION IN PAEDIATRIC INTENSIVE CARE UNIT

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Background: In emergency situations O negative blood (O-) transfusion may be required before standard compatibility tests can be completed. An increase in the use of emergency O- in our paediatric intensive care unit (PICU) triggered an audit to evaluate our approach and measure this against any identified guidelines.

Methods: PICU patients issued emergency O- between January 2004 and December 2008 were identified. Case notes were analysed to ascertain the indications for emergency transfusion, time from PICU admission to transfusion, volume and duration of transfusion and the presence of any transfusion reaction.

Results: Eight patients received a total of 10 units. Two patients were transfused twice. The patients median age was six months. Visible active bleeding with low cardiac output was recorded as an indication on three occasions. Five transfusions occurred in children with low cardiac output and suspected but not proven active bleeding. Two further patients were transfused for low Hb only. Up to 20 ml/kg were given as a bolus over 10 to 20 minutes in all but two cases where it was transfused over 90 and 150 minutes. All patients had been admitted to PICU

more than four hours previously. In three instances, crossmatched blood was already available. No transfusion reactions were documented.

Conclusions: Published data is scarce with regards to the use of emergency O-. Our audit demonstrates the variety and inconsistency of practise. Improved local and national guidance would lead to better understanding and safe transfusion practise in the PICU and wider acute paediatric setting.

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PATTERNS OF MINOR BLEEDING IN NEONATES WITH SEVERE THROMBOCYTOPENIA: A PROSPECTIVE OBSERVATIONAL STUDY

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Background and aim: A prospective cross sectional observational study to determine incidence and pattern of minor bleeding in neonates with severe neonatal thrombocytopenia (SNT) defined as platelet count < 60 x10⁹/L.

Methods: Neonates admitted to seven UK tertiary neonatal units (March 2005 -November 2006) documented to have SNT were enrolled for daily data collection.

Results: 169 babies with SNT were enrolled for 2055 study days. 123 (73%) babies showed minor bleeding, 15 (9%) minor and major bleeds, 31 (18%) no evidence of bleeding. Bleeding as a percentage of study days occurred with greatest frequency in extremely preterm infants: < 28 weeks, 44%; 28-34 weeks, 27%; >34 weeks, 28%. Neonates with early SNT (< 3 days) most commonly had hematuria (31%), oozing (20%) and/or nasogastric bleeding (17%). Neonates with late SNT (≥3 days) most commonly showed hematuria (42%), minor bleeding from the endotracheal tube (24%) and oozing (13%). Minor bleeding (bleeding days as a percentage of study days) with SNT was commoner in the first 10 days (50%) compared to >10 days (33%). Neonates with major bleeds did not show a higher incidence of minor bleeding events prior to the major haemorrhage. 41% of infants with nadir

platelet counts $\leq 40 \times 10^9/L$ had minor bleeding. At platelet counts $>40 \times 10^9/L$ 59% of infants had minor bleeding.

Conclusion: Minor bleeding and in particular hematuria is common in thrombocytopenic neonates and appears to inversely correlate with gestational age but not absolute platelet count.

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L-6 IN CHILDREN WITH REACTIVE THROMBOCYTOSIS

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Background: Reactive thrombocytosis is associated with a variety of clinical conditions such as respiratory tract infections and iron deficiency anemia. IL-6 stimulates the release CRP. IL-6 stimulates thrombopoiesis. EPO may play an important role in reactive thrombocytosis.

Aims: To study the involvement of IL-6, relation IL-6 and CRP, and significance of EPO levels in patients with acute respiratory infections and thrombocytosis.

Methods: A prospective design was used. 61 patients with reactive thrombocytosis were admitted in the pediatric department with respiratory tract infections, during a 6 months period, respecting the inclusion criteria. All patients were classified as reactive thrombocytosis. The evaluated parameters included: platelet count, CRP, serum IL-6, Hb, MCV, MCHC, RDW, iron serum level and EPO.

Results: We investigated 61 patients with reactive thrombocytosis and acute infection, mean age was 19.47 months (std dev 18.5), mean CRP value was 12.9 (std dev 20.28) and IL-6 mean value was 8.53 (std dev 10.622).

In 62.96% of the patients with reactive thrombocytosis, levels of IL-6 and CRP were elevated. In 70.49% of the patients level of IL-6 was elevated. There was significant correlation between reactive thrombocytosis, IL-6 and CRP levels.

In 24.59% of patients IL6 and EPO were positive. 22.95% had confirmed iron deficiency anemia and both EPO and IL6 positive.

Conclusions: The results suggest a correlation between CRP and IL6 in children with respiratory infections. Thrombocytosis in these patients may

be the result of IL6 stimulating TPO and platelet production. No significant relationship between platelet counts and EPO levels was found.

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THE EFFECTS OF ERYTHROPOEITIN-BETA ON FERRITIN, RETICULOCYTE, HAEMOGLOBIN LEVELS AND BLOOD TRANSFUSION REQUIREMENTS IN VLBW INFANTS WITH ANAEMIA OF PREMATURITY

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Aim: To study the effects of erythropoietin-beta in VLBW infants with anaemia of prematurity on their ferritin, reticulocyte, haemoglobin levels and transfusional requirements during the first month of treatment.

Methods: Routine blood sampling for ferritin, haemoglobin and reticulocyte counts were done weekly for VLBW infants receiving 750U/kg of erythropoietin in 3 divided doses per week and daily oral iron of 6mg/kg according to our unit policy.

Results: Over a 9-month period, 35 infants (17 males, 18 females) received erythropoietin. Their mean gestation was 29 ± 2 weeks and mean birthweight was 1.08 ± 0.24 kg. The median haemoglobin level pre-erythropoietin was 10.9g/dL; ferritin, 222mcg/L; and reticulocyte count, 2.9%. Erythropoietin was commenced after the first three weeks of life (mean, 23 ± 5 days; range, 13 to 33 days). The earliest response observed was a 2.5-fold increase in reticulocytes (median, 7.2%; $p < 0.01$) after one week of therapy (3 doses). After 3 weeks of treatment (9 doses), the average ferritin level decreased by 50% (median, 104mcg/dL; $p = 0.011$), but the haemoglobin maintained stable at 10.4g/dL vs the initial 10.8g/dL, $p = 0.25$. All but ten infants (29%) required blood transfusion because of concomitant illnesses or poor weight gain.

Conclusion: The use of erythropoietin-beta was associated with an early rapid increase in reticulocytes and a significant fall in ferritin levels. Monitoring and ensuring iron adequacy is vital to prevent iron-deficiency during erythropoietin therapy. Nine doses of erythropoietin-beta commenced at 3-4 weeks postnatal age maintained haemoglobin