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Haemostasis in newborns with congenital cyanotic heart defects

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Basics: to study haemostasis in newborns with critical cyanotic heart defects
Methods: 21 newborn with critical cyanotic heart defects and mean blood oxygen saturation pre-operatively 51.8%. The subclavian-pulmonary artery anastomosis surgery was carried out urgently on 2±1 day of hospital stay on average. All the patients were clinically investigated, including clotting, full blood count and biochemistry.
Results: pre-operatively we noted that cyanotic newborns have: higher platelets count 12% on average, Prolonged prothrombin index by an average of 19%, prolonged activity of the prothrombin complex by Quick's method by 26.2% on average, Increased INR by 25% on average, Increased fibrinogen level by 194%, Decreased activity of factor X in intrinsic clotting system by 30% in first blood clotting phase, Antithrombin level decreased by 5%, Increased fibrinogen degradation products D-dimer levels by 94.6 %. Post-operatively we evaluate: Decreased haemoglobin level by 12 % on average, normal range of Erythrocytes, haemoglobin, Platelet levels were incersed by 42% on average, Prothrombin time was normal, Activity of the prothrombin complex by Quick's method was increased by 10.2 % on average, Fibrinogen level was 12 % higher than normal level for age, INR prolonged by 9. 5% on average, AT level decreased by 5% on average, D-dimer level increased 141.4% of the normal level. These findings allowed to institute appropriate antithrombotic therapy post-operatively. Standard anti-thrombotic therapy with heparin followed by aspirin was carried out. Human antithrombin and fraxiparine were used alongside with standard anti-thrombotic therapy when high D-dimer and low antithrombin levels.
Conclusion: Haemostasis in newborns with critical congenital heart defects can be characterised as immature. Pre-operatively newborns with critical congenital heart defects have: moderate increase in platelet levels, prolonged INR, increased fibrinogen and D-dimer levels. There have been an increase in platelet count, decreased fibrinogen, increased D-dimer and moderately decreased antithrombin level post-operatively. Given high D-dimer level and low antithrombin level it is wise to combine standard antithrombotic therapy with fraxiparine and human antithrombin respectively.