To our knowledge, this is the first study to evaluate CVC-associated thrombosis in patients with congenital hyperinsulinism (CHI)” Yau et al (2019).

Abstract:

SUMMARY: Congenital hyperinsulinism (CHI) is an important cause of severe hypoglycaemia in infancy. To correct hypoglycaemia, high concentrations of dextrose are often required through a central venous catheter (CVC) with consequent risk of thrombosis. We describe a series of six cases of CHI due to varying aetiologies from our centre requiring CVC for the management of hypoglycaemia, who developed thrombosis in association with CVC. We subsequently analysed the incidence and risk factors for CVC-associated thrombosis, as well as the outcomes of enoxaparin prophylaxis. The six cases occurred over a 3-year period; we identified an additional 27 patients with CHI who required CVC insertion during this period (n = 33 total), and a separate cohort of patients with CHI and CVC who received enoxaparin prophylaxis (n = 7). The incidence of CVC-associated thrombosis was 18% (6/33) over the 3 years, a rate of 4.2 thromboses/1000 CVC days. There was no difference in the frequency of genetic mutations or focal CHI in those that developed thromboses. However, compound heterozygous/homozygous potassium ATP channel mutations correlated with thrombosis (R² = 0.40, P = 0.001). No difference was observed in CVC duration, high concentration dextrose or glucagon infused through the CVC. In patients receiving enoxaparin prophylaxis, none developed thrombosis or bleeding complications. The characteristics of these patients did not differ significantly from those with thrombosis not on prophylaxis. We therefore conclude that CVC-associated thrombosis can occur in a significant proportion (18%) of patients with CHI, particularly in severe CHI, for which anticoagulant prophylaxis may be indicated.

LEARNING POINTS: CVC insertion is one of the most significant risk factors for thrombosis in the paediatric population. Risk factors for CVC-associated thrombosis include increased duration of CVC placement, malpositioning and infusion of blood products. To our knowledge, this is the first study to evaluate CVC-associated thrombosis in patients with congenital hyperinsulinism (CHI). The incidence of CVC-associated thrombosis development is significant (18%) in CHI patients and higher compared to other neonates with CVC. CHI severity may be a risk factor for thrombosis development. Although effective prophylaxis for CVC-associated thrombosis in infancy is yet to be established, our preliminary experience suggests the safety and efficacy of enoxaparin prophylaxis in this population and requires on-going evaluation.
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