How to check tip placement in dysfunctional central venous catheters

...using dilute sodium bicarbonate injection and the resultant rise in measured end-tidal carbon dioxide tracing can confirm correct intravascular placement of a dysfunctional CVC in children at the bedside” Keidan et al (2015).

Abstract:
BACKGROUND: In children undergoing intravenous chemotherapy, partial dysfunction of the central venous catheter (CVC) is common. Fluids can be infused into the catheter; however, blood cannot be aspirated. In those situations, chemotherapy is withheld and a catheter investigation is performed. Usually, a radiographic study with contrast media or therapy with thrombolytic drugs followed by rechecking for blood return is undertaken.

AIM: To evaluate if a previously described method using dilute sodium bicarbonate injection and the resultant rise in measured end-tidal carbon dioxide tracing can confirm correct intravascular placement of a dysfunctional CVC in children at the bedside.

PATIENTS: Cohort group of 22 children scheduled for chemotherapy with partial dysfunction of a CVC in a tertiary hematology-oncology care facility.

RESULTS: All children with a partial dysfunctional CVC that was proven to be intravascular after venogram or thrombolytic therapy had a distinct and predictable increase in end-tidal carbon dioxide response to injected bicarbonate.

CONCLUSION: Injection of 1 mL/kg (maximum 20 mL) of 4.2% dilute sodium bicarbonate is a quick, simple, bedside test allowing confirmation of intravascular location of dysfunctional CVC.

Reference:

Thank you to our partners for supporting IVTEAM

- Septic shock related to central venous catheter infection results in fatal outcome
- Interventions to treat obstructive long-term central venous catheter in cancer patients
- Interventions to reduce unnecessary central venous catheter use